

PROCESSES OF CORPORATE AND MANUFACTURING
STRATEGY MAKING:
MUTUAL INFLUENCE AND PERFORMANCE

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CERTIFICATE

This is to certify that the present work on "Processes of Corporate and Manufacturing Strategy Making: Mutual influence and Performance ", by Major Ajay Ghosh has been carried out under my supervision and has not been submitted elsewhere for award of a degree.



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ABSTRACT

In this paper we present a framework that determines the fit between corporate strategy making process and the manufacturing strategy. Our major contention is that a firm's corporate strategy of choosing to adopt in an incremental fashion may require a corporation to pursue an incremental manufacturing strategy, and vice versa. If a firm pursues a rational approach to corporate strategy making process, then it has maximum chances of having a good alignment between corporate strategy and manufacturing strategy. A firm pursuing a bold approach to strategy making may reduce the riskness of the strategy by appropriately emphasizing the marketing function.

We develop a few theoretical hypothesis and collect data from twenty five companies to find substantial support for our hypotheses. We also give the implications of our frame work for the top management of manufacturing firms.

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CONTENTS

Chapter		Page
I	INTRODUCTION	1
II	LITERATURE SURVEY	5
III	DEVELOPMENT OF CONCEPTUAL FRAMEWORK AND FORMULATION OF HYPOTHESIS	14
IV	METHODOLOGY OF STUDY	17
V	ANALYSIS	20
VI	CONCLUSION AND FUTURE RESEARCH	28
	REFERENCES	29
	APPENDIX	

CHAPTER 1

INTRODUCTION

Manufacturing strategy has received increased attention in the recent years as an important element in the firms attempt to gain the competitive advantage in the market place (Skinner 1969; Hayes & Wheelwright 1984; Adam & Swamidass 1989). While a firms overall business strategy essentially outlines the general steps to be taken to attain a set of long range objectives, manufacturing strategy defines the manner in which the manufacturing resources are deployed to reach the firms objective(Hayes & Wheelwright 1984). The problem is that simply improving manufacturing by means of improvement program like TQM, JIT production & DFM(Design for manufacturablity), Lean Manufacturing, Re-Engineering, Bench marking etc. is not a strategy for using manufacturing to achieve competitive advantage.

The crux of the issue is that most companies focus on the “form” of their organization assets for e.g. the mechanics of the JIT and TQM rather than on their “substance”. The consequence is that managers have tended to view such programs as solutions rather than as stepping stones in the intended direction.

In today’s turbulent competitive environment, a company more than ever needs a strategy that specifies the kind of competitive advantage that it is seeking in the market place and articulates how that advantage is to be achieved.

While the activity in manufacturing strategy in industry is quiet recent, within the last few years, the literature dates back to 1969 when Wickham Skinner of Harvard Business School published his famous article, ”Manufacturing: The Missing Link in Corporate Strategy”. Since then over 80 articles and books have been written.

The first and the most important reason for manufacturing strategic planning is to help the business complete. Strategic planning is externally oriented and can help manufacturing gain a competitive position or maintain its current lead. Manufacturing

strategic planning is also intended to guide the day-today tactical decision making which goes on in manufacturing.

Whenever the environment of the business is changing, strategic planning becomes all the more important. In these cases staying with the present strategy and the technology can be disastrous as the external world changes. Strategic planning in manufacturing is intended to identify the external environment and adapt to it in a strategic sense.

Also strategic planning for manufacturing casts manufacturing in a proactive role. Manufacturing is often caught on the defensive by reacting to other peoples plans. By doing strategic planning, manufacturing can get out in front and determine its own destiny. Manufacturing can also explain more clearly why certain things cannot be done, because they do not fit into with the manufacturing strategy.

Definition: *“Manufacturing strategy provides a vision for the manufacturing organization based on the business strategy. It consists of objects strategies and programs which help the business gain, or maintain, a competitive advantage.”* (A manufacturing strategy is more than just a plan. It should provide a vision for where the organization is headed. Manufacturing management must provide the leadership to develop the vision. The manufacturing strategy should contain long range objectives, as well as strategies and program for manufacturing).

As a working definition, manufacturing strategy is viewed as the effective use of manufacturing strengths as a competitive weapon for the achievement of business and corporate goals. Manufacturing strategy reflects the goals and strategies of the business, and enables the manufacturing function to contribute to the long term competitiveness and performance of the business (Skinner 1985; Wheelwright and Hayes 1985).

Earlier top management of corporations ignored the manufacturing function and delegated its responsibility to the manufacturing vice presidents who had dominant technical competence and little or no general management abilities. They tended to emphasize a single criteria for which they geared their manufacturing facilities and failed to

correctly prioritize the different criteria in light of market conditions. Skinner (1969) was first to point out that such a state of affairs existed and stressed the need for developing a framework that would help the top management of manufacturing organizations in appropriately designing the manufacturing strategies. Later work by Skinner (1978) led to the identification of the following performance criteria for the manufacturing facilities: manufacturing cost per unit of output delivery time quantity and investment in manufacturing facilities and it was argued that to be a successful a specific market segment would require a specific ordering of the priorities around which the respective manufacturing facilities would be built.

Logical extension to this led Skinner (1978) to come up with *the plant within a plant concept* (PWP for short) that essentially sought the production facility to cater to each of the market segment, so that each segment has its own set of priorities to give superior performance. It was realized that it was not possible for a particular manufacturing facility to be able to meet different performance standards. Skinner (1964) had earlier given a very useful efficiency/effectiveness interpretation of this phenomenon. Other notable contributions to the manufacturing strategy literature are the plant and equipment strategy and personnel strategies.

In this paper we argue that the process of corporate strategy making (disjointed incrementation, rationality and assertiveness) has important implications for the manufacturing strategy and also the overall corporate performance. We are able to prepare a framework which identifies new causes a misalignment between manufacturing strategy and corporate strategy .

The plan of the thesis is as follows:

In chapter 2, we present relevant literature on manufacturing strategy and corporate strategy making. In chapter 3, development of conceptual framework and formulation of hypothesis is presented. In chapter 4, the methodology with which we went

about our work is discussed. In chapter 5, we present a detailed analysis of the specific case studies carried out. In chapter 6, conclusions and scope for further work is presented.

CHAPTER 2

LITERATURE SURVEY

2.1 Literature Survey on Manufacturing Strategy :

Intensifying competition in many global manufacturing industries has spurred a renewed interest in all areas of manufacturing . Many companies which, in the past, competed principally on the basis of domestic terms and conditions are now being forced to compete on global requirements. Concomitantly, the business strategies that were based on improving internal efficiency and effectiveness have given way to those allowing an organization to be competitive in a number of different markets, which are becoming increasingly differentiated. The traditional view of business in many US organization is based on command and control strategy . The basic premise of this strategy is that manufacturing is a problem that can be solved with a stated, narrowly defined process at a given time. That process then continues in place with little incremental upgrading, until a significant improvement or new technology is implemented by the competitor, at which time the first organization must scramble to retain a competitive edge (**Manufacturing Studies Board, National Academy Press, *Toward a New Era in US Manufacturing: The Need for a National Vision***) .Most companies simply seek to minimize the possible negative impacts of their manufacturing operation under this philosophy. They ignore the fact that manufacturing can be a competitive weapon, rather than just a collection of ponderous resources and constraints. In these organizations manufacturing has always played an essentially neutral role. Skinner observed that :

To many executives, [the] manufacturing and production function is a necessary nuisance - it soaks up capital to facilities and inventories. It resist changes in products and schedules, its quality is never as good as its should be , and its people are unsophisticated, tedious, detail-orientated, and unexciting. This makes for an unreceptive climate for major innovations in factory technology, and contributes to the blind spot syndrome. (Operations Technology: Blind Spot in Strategic Management--1983).

According to Hill, (*Manufacturing Strategy : Text and Cases--1989*) there are two important roles manufacturing can place a firm in a position of technological strength by providing unique manufacturing processes and operation strategy with distinct technologies that competitors may be unable to match, thus providing a clear advantage in the market place. Second, manufacturing can develop a set of policies in both its process choices and infrastructure design that are consistent with the competitive criteria that win orders. Several authors have argued that in order for manufacturing to play these roles, and organization's manufacturing strategy must be consistent with its business strategy (Schroeder R.G., Anderson J.C., and Cleveland G., *The Content of Manufacturing strategy .Journal of Operations Management*). An exhaustive list of references related this issues is provided in [13]. Hayes and Wheel Wright, while echoing the need for consonance between manufacturing and business strategy, stated that :

*To understand the potential contribution that the manufacturing function make in strengthening a firm's competitive function companies an make in strengthening a firm's competitive position, it is useful to look more closely at the relation ship between manufacturing strategy and business strategy , and how the attitudes and preferences that underlie a business strategy also shape its manufacturing strategy(Hayes and Wheelwright. *Restoring our Competitive Edge..*).*

Skinner Analyzed companies in several industries using the case study approach (*Manufacturing : The Formidable Competitive Weapon*). He concluded that if an organization manufacturing policy is consistent with and supports its competitive strategy, manufacturing becomes a competitive weapon. If, on the other hand, the policy is not consistent with the corporate strategy, a negative influence on the company's performance may result.

Hayes and Wheelwright proposed that the role of manufacturing in an organization's strategy competitive strategy progresses through four stages (*Harvard Business Review: 1985 Jan-Feb., Competing Through Manufacturing*). In the first stage, their role of

manufacturing management is considered to be “internally neutral”. Organization in this stage seek external experts to make decisions about their strategic manufacturing issues. Management control systems are the primary method of monitoring performance, and the posture of manufacturing is kept flexible and reactive. In the second stage, called “externally neutral”, manufacturing seeks to achieve parity with competitors primarily through companies capital investment. Industry practices related to work force and capacity decisions are followed. The third stage of manufacturing is characterized as “internally supportive”. In this stage, manufacturing is expect to provide support to the business strategy , and changes in business strategy are immediately translated into manufacturing implications. Long-term manufacturing developments and trends are systematically examined. The fourth stage, referred to as “externally supportive,” is characterized by and increased emphasis on in-house innovation. an organization in this stage pursues a manufacturing based competitive advantage and encourages manufacturing involvement in major marketing and Engg. decisions. Long-range programs are implemented to acquire manufacturing capabilities before they are needed and a manufacturing strategy is developed in an iterative fashion from the business strategy . this four stage evolutionary process emphasizes an organization need to establish a strong link between its manufacturing and business strategies a it evolves toward the use of manufacturing as a competitive weapon.

Hayes, et al. suggested that manufacturing strategy is determined by the pattern of the decisions actually made over time related to structural and infrastructure choices (Hayes and Wheelwright--*Restoring our Competitive Edge* 1984, and *Dynamic Manufacturing: Creating the Learning Organization* 1988). An analysis of manufacturing strategy that does not include an understanding of structural and infrastructure decision patterns and the forces that derive them is incomplete. These decision patterns implicitly define the manufacturing strategy of an organization (e.g. in this article, as a business unit of a company) and provide a frame work within which

competitors behavior can be analyzed. the *structural* components are the hard, or brick-and -mortar, choices concerning technology, capacity, facilities and vertical integration. *Infrastructure*, or soft aspects of the operations are considered more tactical in nature because they encompass a myriad of ongoing decisions. They include human resource policies, quality production planning and materials control, and organization al structure and design. the manufacturing function works best when the choices made in these eight structural and infrastructure manufacturing strategy decision categories are consistent with the recognized priorities of a firms corporate strategy (Hayes and Schmenner--*How should you Organize Manufacturing?* Harvard Business Review, 1978).

Manufacturing strategy is part of the widely accepted hierarchy of strategy suggested by Hofer (1975) and Schendel (1978). The hierarchical view of strategy visualizes at least three levels of strategies. First, within a large multibusiness corporation, *corporate strategy* involves the selection of product markets or industries and the allocation of resources among them. Second, each business unit within a multi-business corporation could have its own specially tailored *business strategy* designed to use its distinctive competencies as competitive weapons. Third, *Manufacturing strategy* forms a part of a cluster of functional areas strategies such as marketing strategy , financial strategy, etc., which complement higher level business and corporate strategies.

In the evolution of manufacturing strategy theory, some variables, components, and determinants of manufacturing strategy have been identified by operation management writers, notably, Skinner (1969, 1984), Wheelwright (1984), Miller (1981), Buffa (1984) and Hayes and Wheelwright (1984). However certain factors of critical importance to manufacturing strategy have not received sufficient attention in operations management area literature.

.For example, environmental uncertainty, whose importance to strategy is

explicitly recognized in the organization theory and business policy literature, has received little attention in manufacturing strategy literature.

Skinner(1969) introduced the concept of manufacturing strategy 's role in the corporate framework. Along with the efforts of Hayes and Wheelwright(1984), Anderson et al (1989), Fine and Hax (1985), Hill(1989), and Roth (1989), Skinners work suggest a hierarchical model in which corporate strategy drives business strategy which, in turn the strategy of manufacturing and other functional areas within the business unit. e.g.(marketing, research & development). Although the "consensus" model is hierarchical, Hayes(1985) cautions that functional capabilities should, in some cases, drive corporate strategy .

Literature on manufacturing strategy research has been categorized into "process" and "contents" in the literature Ettlie (1991), but it is interesting to note that the "contents" of manufacturing strategy have been discovered by identifying the weakness in the "process" of manufacturing strategy making.

2.2 Literature survey on corporate strategy:

Recently Miller (1987) has presented a characterization of the corporate strategy making process. We briefly reproduce a part of it here. The three multifaceted dimensions of strategic decision making process are: rationality, assertiveness, and interaction.

The first dimension-- rationality -- is central to schools of thought. Scholars have referred to the first as the synoptic (Frederickson, 1984; Lindblom, 1959), planning (Mintzberg, 1973a), or rationality (Miller & Friesen,1984) school. Its theoreticians suggests the importance of careful analysis (Ansoff, 1965), of systematically scanning markets for problems and opportunities (Aguilar,1967; Andrews, 1980), and of methodically planning and articulating unified strategies (Ansoff, 1965; Steiner, 1969).

The second school treats strategy making as very much subject to bounded rationality (March & Simon, 1958; Simon, 1947). According to this group of theoreticians, firms do little analysis, emphasize satisficing, not optimizing, and formulate strategies according to a disjointed, intuitive, implicit, and spontaneous process (Cyert & March, 1963; Lindblom, 1959; March & Olsen, 1976; Quinn, 1980). These scholars claim that this non rationality approach is essential, given the range and complexity of the problems facing organizations and the attendant political and cognitive limitations (March & Simon, 1958). It relates to Mintzberg's (1973a) adaptive mode, which he claims is present mainly in large, politically fragmented organizations.

The second dimension-- interaction -- has become more widely recognized with the work of Likert (1961), Bower (1970), Pettigrew (1973), March and Olsen (1976), and Wildavsky (1977). These scholars view decisions as outcomes of political and social processes, such as those taking place in Mintzberg's (1983) political arenas. Although political processes may vary greatly in nature and intensity, most organizations are political bodies in which, for better or worse, bargaining, politicking, and consensus building often come to bear on decisions. This is especially true in large and decentralized companies. Small firms, however, are often so centralized that a single executives makes decisions without much interaction (Collins & Moore, 1970)

The third dimension of strategy making-- assertiveness -- concerns levels of risk taking and the reactiveness or proactiveness of decisions. Entrepreneurial firms (Collins & Moore, 1970; Mintzberg, 1973a) take bold risks and act on rather than react to their environments. More complex organizations often behave conservatively and act only incrementally and in response to problems (Cyert & March, 1963; Lindblom, 1959; Quinn, 1980).

2.3 Typology of environment :

Organizational theorists emphasize that organizations must adapt to their environment if they are to remain viable. One of the central issues in this process is coping with uncertainty. If a theory of organization environment interaction is to be developed to facilitate empirical research, it is necessary that the components and dimensions of the environment be more clearly defined. This identification, in turn, then facilitates the identification of types of environments that contribute to different degrees of uncertainty as perceived by individuals involved in decision making. It should be emphasized that environment uncertainty and the dimensions of the environment are defined here in terms of the perception of organization members. Research has indicated that there are differences in individuals in the perception and tolerance for ambiguity or uncertainty.

2.3.1 The environment:

Many authors have attempted to describe or dimensionalize organizational environments. One of the earliest and most influential attempts was the work of Emery and Trist (1965). Emery and Trist described four types of environment , which differed according to the source and nature of the interdependence between organization and environment .The first type is called *placid-randomized*, referred to as a situation in which resources desired by the organization are randomly distributed throughout the environment . The second type of environment called *placid-clustered*, referred to an environment in which pattern of resources was sequentially predictable. The third type of environment called *disturbed-reactive*, refers to an environment which is affected by the actions of the organization itself and in economic terms the environment is referred to as

oligopolistic. The fourth type of environment called, *turbulent*, refers to an environment in which invisible actions in the in the interconnected subsystem of environment have profound effect on organization's immediate exchanges.

Task environment have been characterized by March and Simon (1958) as hostile or benign. Dill (1958) distinguished task environments as homogeneous or heterogeneous, stable or rapidly shifting and unified or segmented. Duncan (1972) has identified two dimensions of environments. The *simple-complex* dimension is defined as the number of factors taken into consideration in decision making. The *static-dimension* is viewed as the degree to which these factors in the decision units environment remain basically the same over time or are in a continual process of change. He has found that the static-dynamic dimension of the environment is a more important contributor to uncertainty than the simplex-complex dimension.

In yet another context environment is thought of as a totality of physical and social factors that are taken directly into consideration in the decision-making behavior of individuals of the organization . If the environment is defined in this way, there are then factors within the boundaries of the organization or specific decision-making units that must considered as part of the environment . A differentiation made, therefore, between the system's internal and external environment .

The internal environment consists of those relevant physical and social factors within the boundaries of the organization or specific decision unit that are taken directly into consideration in the decision making behavior of individuals in the system. The external environment consists of those physical and social factors outside the boundaries

of the organization or specific decision unit that are taken directly into consideration. The list of environmental components, as given by R B Duncan (1972), presented in Table 1 given as appendix "A" may be particularly relevant to industrial organizations and may vary for other types of organizations.

These findings go beyond existing research by more clearly conceptualizing the environment and factors comprising it. The empirical analysis of organization environment interaction is, therefore, facilitated.

3.2 Development of hypothesis:

Proposition 1: A firm analyzing all possible variables and choosing a “rational” process of strategy making is likely to have a good fit between its corporate and manufacturing strategy and hence successful.

A firm may choose an "incremental" approach to strategy making because it faces a turbulent environment or because it faces resource constraints, or because it faces complex internal environment. A firm pursuing an “Incremental” approach to strategy making process is likely to take small steps each time and hence most likely to pursue an “Incremental” approach to manufacturing strategy making. A firm choosing an “Incremental” manufacturing strategy will most likely invest in production facility which require moderate investment. The firm would sell a differentiated product which can command a higher price which makes up for higher cost of production.

A firm possessing a large production set up aimed for the low per unit cost of manufacture, can produce alternate products by appropriately stressing tool engineering; and thus be able to take a comprehensive approach to strategy making. But a firm with moderate investment in production facilities may face problems when it is required to compete with a cost leader. Hence, a firm pursuing an “Incremental” manufacturing strategy either due to resource crunch, or turbulent environment, or high internal complexity, may be required to pursue an “Incremental” approach to making corporate strategy (Hayes, 1980) . Hence, we propose the following.

Proposition 2: A firm pursuing an “Incremental” approach to corporate strategy making may be required to pursue an “Incremental” approach to manufacturing strategy making and vice-versa.

Firms facing a stable environment are likely to pursue a bold approach to corporate strategy making.

CHAPTER 3
DEVELOPMENT OF CONCEPTUAL FRAME WORK
AND FORMULATION OF HYPOTHESIS

3.1 Corporate strategy making process and its effect on manufacturing strategy

In this chapter we present a frame work that gives the relationship between corporate strategy making process and the manufacturing strategy. We argue that a corporate strategy choosing to adapt in an incremental fashion may require a corporation to pursue an incremental manufacturing strategy. If a firm pursues a rational approach to corporate strategy making process, then it has the maximum chances of having a good alignment between corporate strategy and manufacturing strategy . A firm pursuing a bold approach to strategy making may reduce the riskness of the strategy by appropriate emphasizing the marketing function.

We also argue that the process of corporate strategy making (disjointed incrementalism, rationality and assertiveness) has important implications for the manufacturing strategy formulation and also the overall corporate performance. We are able to prepare a framework which identifies new causes of misalignment between manufacturing strategy and the corporate strategy .

A firm pursuing the rational approach to strategy making is expected to do well as it would be engaged in extensive analysis. It is to be noted that the domain of “rationality” has increased in the manufacturing strategy literature since the seminal work of Skinner(1964).

We developed a few theoretical hypothesis and collected data from twenty five companies of different manufacturing industries to find substantial support for our hypothesis. We also give the implications of our framework for the top management to these firms.

Proposition 3: In stable environment firms take a bold approach to strategy making and make larger investment in manufacturing .

When environment gets turbulent, firms prefer incremental approach to strategy making and take lesser risks and make incremental investments in manufacturing .Hence we propose:

Proposition 4: Incremental approach to strategy making may be desirable in turbulent environment where as "incremental" approach in strategy making in stable environment may lead to poor exploitation of opportunities.

In turbulent environments if a firm chooses to take a bold approach to corporate strategy making then it is taking a relatively larger risk. Firms can choose to reduce risk by appropriately emphasizing the order winning marketing function as suggested by Hill (1985,1989). Hence we propose the following.

Proposition 5: In turbulent environment bold approaches to strategy making emphasizes the order winning marketing function to offset the large risk associated with large investment in manufacturing.

METHODOLOGY OF THE STUDY

Although many scholars have studied the concept of manufacturing strategy and the process of strategy formulation; decision making in complex organization (Carter, 1971; Mintzberg, 1973a; Pettigrew, 1973) and also the typology of environment; but they have made little attempt to relate these three. Yet there may well be intrinsic association between strategy making , manufacturing and environment. This study suggests that the process of strategy making, process of manufacturing strategy making and the type of environment are highly interdependent and must be complementary in many ways to ensure good performance under challenging conditions.

We analyzed the financial data of the companies selected from different industries (given in Appendix "B") and studied the impact of strategy making in a particular environment, on manufacturing strategy.

The various datas of the companies selected for analysis were collected from the secondary published data such as Stock Exchange Directory and Center for Monitoring Indian Economy (CMIE) journals.

Case study method was not selected, because of lack of time and resources, although it has its inherent advantages and strengths like novelty, testability and empirical validity, which arise from the intimate linkage with empirical evidence. Given the strengths of this theory-building approach and its independence from prior literature or past empirical observation, it is particularly well suited to new research areas or research areas for which existing theory seems inadequate.

To substantiate and analyze the hypothesis developed, we had chosen twenty five manufacturing firms from different industries. These firms selected were such that some of

them were the market leaders in their industry whereas some were the smallest contributor to the market. This was done so as to get a wider perspective of the industry.

A large amount of financial and other data were collected in respect of the firms, so as to find out the environmental status and strategies. As brought out by R B Duncan (1972) in his paper "Characteristics of organization environment and perceived Uncertainty"; the environment of the above twenty five firms were identified using a modified version of scale as adopted by him.

It should however be noted that in our research we have ignored the effect of internal environment . This could be a topic for future research. The assumptions made therefore in respect of internal environment are:

- a. Firms has more control over the internal environment.
- b. External environment influences internal environment to a substantial extent.

The financial data collected for most of the firms were for the last ten years and the analysis were carried out. The result obtained for the twenty five firms are given in appendix "A5 " to "Y5 ".

We wish to decipher the strategy making process of a firm ten years back and see its effects. During this time key managers would have left the jobs and become difficult to contact, and hence case study method study though recommended would become impossible. Hence we went for company data available from secondary resources also since case study would consume lot of time and effort which is not available to us for this project. Hence we could not take up case study or interview type of approach. The approach followed by us is as given below.

If the firm follows an “rational” approach to corporate strategy making process, then it would realize an integrated strategy. If it followed an “interaction” approach to corporate strategy making process then it would realize an incremental corporate strategy. Similarly if the corporate strategy making process is bold, it would realize a bold

corporate strategy. Thus we measured the realized corporate strategies and inferred about the corporate strategy making process (Danny Miller , 1987).

Similar argument goes for manufacturing strategy also . That is , if the firm follows an “rational” approach to manufacturing strategy making process, then it would realize an integrated strategy. If it followed an “interaction” approach to manufacturing strategy making process then it would realize an incremental manufacturing strategy. Similarly if the manufacturing strategy making process is bold, it would realize a bold manufacturing strategy. Thus we measured the realized manufacturing strategies and inferred about the manufacturing strategy making process.

After collection of data the next step was to determine the type of environment, the type of corporate strategy making process and manufacturing strategy making process. For this purpose different scales were developed as given below.

Scale for environment is given in appendix "C".

Scale for corporate strategy making process is given in appendix "D".

Scale for manufacturing strategy is given in appendix "E".

We did not give a score on each item on the scale, but evaluated them in totality.

CHAPTER 5

ANALYSIS

The analysis was carried out in the following manner:

The following factors were ascertained from the secondary data of the particular company.

- a. Expenditure on plant and machinery (manufacturing equipment); cumulative and yearly.
- b. Sales
- c. Return on investment.
- d. Ratio of net profit by total assets.
- e. Intangible assets as a percentage of sales.
- f. Raw materials consumed as percentage of sales.
- g. Expenditure on advertising, marketing and distribution.
- h. Market share.
- i. Capacity utilization.

The factors plotted for various companies are as shown in appendix A1 to Y4.

In the case of ACC which was manufacturing cements, although they were the market leaders the competition was severe. Their sales were up moderately every year and their investment in manufacturing equipment was almost incremental. Although the profitability was good, their environment was moderately turbulent. This verifies our hypothesis 2 and 4(a)

Asian paints were the market leader in the paint industry having almost 25 % of the market share. However the competition was severe. They followed an incremental manufacturing strategy except for one year in which they took a bold jump. The sales went up by 85% twice. Their marketing expenditure was around 13%. Their environment was turbulent. This verifies our hypothesis 4(a) and 5, but negates hypothesis 2. It so appears that hypothesis 2 is not applicable in the process industry.

Ashok Leyland were the manufacturers of LCV/MCV, having a market share of around 20%. The competition was not that severe, and they followed a incremental

manufacturing strategy . Their R & D expenditure was very less at around 0.2% only. Their sales went up yearly by an average of 17 %. Hypothesis 2 and 4(b) is verified.

Batliboi was the manufacturer of Engineering machinery having a market share of around 11%. There were a lot of competitors for them, and hence their sale went up by only less than 5%. Their profitability was low and hence their R & D expenditure was low/moderate. Investment in plant and machinery was less than 15% of the sales. This verifies our hypothesis 2 and 4(a).

Bharat Forge were the manufacturers of forgings and crankshafts. Their investment in plant and machinery was 40 to 75 % of their sales. Their environment was stable and comfortable and the firm was doing well in the industry. They followed bold approaches to manufacturing strategy . This verifies our hypothesis 3.

Birla Yamaha were the manufacturers of portable generator sets. From the data available the competition seems to be severe. Their sales are fluctuating every year and they are operating under their break-even point and they are making losses. They followed bold manufacturing strategy . Their investment in advertising and marketing was very high implying that they stressed on order winning marketing function, but however could not get results. Hence Birla Yamaha negates our hypothesis 5. It appears that investment in manufacturing is necessary but not sufficient.

Coromandal cements are the manufactures of Cements having only a market share of 0.1%. Their sales goes up substantially . Investment in plant and machinery was incremental , the environment was turbulent and they followed a incremental Corporate strategy . If we take a composite product of market share and actual sales rise percentage, the sales are rising incrementally. Hence actually it verifies hypothesis 2 and also 4(a).

Dalmia cements was another cement manufacturer having only 1.3% of the market share. Their sales also goes up substantially and investment in plant and machinery was very high . Their environment was turbulent and they have taken bold manufacturing strategy and they have also stressed in marketing function. This verifies hypothesis 5.

Dunlop Tyres had around 8% of the market share in the tyre industry and were having a turbulent environment . Their approach to manufacturing strategy was bold and the marketing expenditure was also high. Investment in plant and machinery was 45% of sales and sales went up by 20%. Verifies hypothesis 5.

Eicher Motors were the manufacturers of LCVs having a market share of 7%. There were many competitors They being not the market leaders the environment was turbulent . They followed incremental approach to manufacturing strategy .This verifies hypothesis 4(a). If we take a composite product of sales rise and market share to compute actual sales rise then it verifies hypothesis 2 also.

Hawkins pressure cookers had an turbulent environment and they followed an incremental approach to manufacturing strategy. The sales goes up substantially every year Their investment in plant and machinery was low at 4 to 7% of the sales. They verifies hypothesis 4(a) and negates hypothesis 2. Since the market share figures are not available, we are a bit doubtful about hypothesis 2. Also they might have made bold investments in manufacturing earlier for which also data is not available.

JK Tyres manufactures automobile tyres and had a market share of around 12%. The sales went up moderately every year. Manufacturing strategy followed was one bold step and then incremental Their profitability was moderate and their environment was turbulent . This verifies hypothesis 4(a). Again if one takes the joint product of sales rise percentage and market share, sales are up only incrementally. Hence hypothesis 2 is also verified.

Hero Honda produces two wheeler motor cycles and they were the market leaders in the industry having about 31% of the market share. The environment was comparatively stable. They followed an incremental approach to manufacturing strategy . They verified hypothesis 3 and negates hypothesis 2. But may be they have taken a boldstep to manufacturing when they had set up the plant and machinery.

India cements produces cements having a market share of around 5%. Their environment was turbulent and they stressed on the marketing function very much. Their marketing, advertising and distribution expenditure was as high as 15%. Manufacturing strategy followed was bold approach. This verifies our hypothesis 5.

Kirloskar manufactures IC Engines and enjoys a market share of about 30%. They sell their product only to its sister concerns and it is not a free market company like others. Their sales are assured and hence environment is stable. They followed a bold step in manufacturing and verifies hypothesis 4(b).

Goodlass Nerolac is a paint manufacturing company having a market share of around 12%. The competition is severe although their sales goes up substantially every year. Their marketing expenditure is also substantial. The manufacturing strategy followed is incremental. They verifies hypothesis 4(a) and negates hypothesis 2. This case is similar to that of Asian Paints and it being a process industry, hypothesis 2 is also not applicable to Nerolac Paints.

Reliance are producers of high quality textiles and enjoys a market share of about 30%. However the competition is severe but their sales are zooming. Their investment in plant and machinery is very heavy. Corporate strategy is not incremental but synoptic; big growth every time. They have stressed on marketing function very well and followed bold approach to both Manufacturing and Corporate strategy. This verifies our hypothesis 5.

SAIL is the country's most biggest steel manufacturer having about 45% of the market share. They being the market leader the environment is stable. The sales goes up moderately every year. However their profitability seems to be low. They verifies hypothesis 2 and 4(a).

Shalimar paints is having only a market share of around 5% and hence the competition is severe. The sales goes up yearly by about 30% but however the investment in plant and machinery is very low. The manufacturing strategy followed is incremental.

This verifies our hypothesis 4(a).

Sri Chakra is a tyre manufacturing company having only a market share of less than 1%. They followed an incremental approach to manufacturing strategy and their investment in plant and machinery as a percentage of sales is around 50%. Their environment was turbulent. This verifies our hypothesis 4(a). Again if one takes the product of market share and sales rise percentage, the actual rise is only incremental and it verifies our hypothesis 2.

TELCO manufactures LCV/MCVs and they are market leader in the industry. However the competition is near to stable and investment in plant and machinery is substantial. They may be having an integrated strategy. Manufacturing strategy was bold initially then incremental and again followed bold steps. Verifies hypothesis 1 and 3.

TISCO manufactures steel and have a market share of about 17%. Their environment is turbulent because of the competition although the sales goes up moderately. Manufacturing strategy followed was initially two bold steps and then goes up dramatically. Marketing expenditure is also very high. Verifies hypothesis 5.

Titan watches are the market leaders in the quartz watch industry enjoying a market share of 41%. Environment is stable and comfortable. They stressed on the marketing function and followed bold approaches to manufacturing strategy. This verifies our hypothesis 3.

Uptron television manufactures color tubes and television having a market share of only 5%. Hence the competition is severe and the environment is turbulent. However they have taken bold approaches to manufacturing strategy. Despite they stressing on marketing function the firm is doing bad in the TV industry. This negates our hypothesis 5.

Vikrant manufactures automobile tyres and has a market share of 6.3%. The competition is severe and the manufacturing strategy followed is bold steps; however they have not stressed on the marketing aspect and hence doing bad in the industry. This again verifies our hypothesis 5

The theoretical propositions developed were checked with the empirical data and it was found that:

Hypothesis 1 was verified by 1 company.

Hypothesis 2 was verified by 8 companies; negated by 4 companies.

Hypothesis 3 was verified by 4 companies

Hypothesis 4(a) was verified by 11 companies

Hypothesis 4(b) was verified by 2 companies.

Hypothesis 5 was verified by 7 companies; negated by 2 companies.

Hypothesis 4(a) had strong support from data.

Out of seventeen companies having incremental manufacturing strategy, four had negated Hypothesis 2. They are Asian Paints, Hawkins Cookers, Hero Honda, and Goodlass Nerolac. A possible reason for this could be that for the process industries like the paint industry hypothesis 2 may not be applicable. This could further be established only after conducting further in-depth studies on more number of firms.

A few companies like Birla Yamaha and Uptron Television had negated our hypothesis 5. They were having a turbulent environment and followed bold approaches to strategy making, to emphasize the order winning function to offset the large risk associated with large investment in manufacturing, yet they could not perform well in the industry. It implies that investment in marketing in a turbulent environment is necessary to emphasize the order winning marketing function but not sufficient enough to have success. We have thus obtained overwhelming support for our hypothesis.

Encouraged by the results we developed a more comprehensive frame work as shown in fig 1.

<div> <div> Manufacturing Strategy Making Process </div> <div> Corporate strategy making Process. </div> </div>	<u>Rational</u>	<u>Incremental</u>	<u>Bold</u>
<u>Rational</u>	<div> T1 stable environment S1 Good fit </div> <div> T2 turbulent environment S2 Poor fit </div>	<div> T2 stable environment S2 Poor fit </div> <div> T3 turbulent environment S3 Must emphasize mktg function for success </div>	<div> T3 stable environment S3 Must emphasize mktg function for success </div> <div> T6 turbulent environment S6 Poor fit </div>
<u>Incremental</u>	<div> T4 stable environment S4 Good fit </div> <div> T5 turbulent environment S5 Poor exploitation of opportunities </div>	<div> T5 stable environment S5 Poor exploitation of opportunities </div> <div> T6 turbulent environment S6 Poor fit </div>	<div> T6 stable environment S6 Poor fit </div> <div> T8 turbulent environment S8 Poor fit </div>
<u>Bold</u>	<div> T7 stable environment S7 Poor fit </div> <div> T8 turbulent environment S8 Poor fit </div>	<div> T8 stable environment S8 Poor fit </div> <div> T9 turbulent environment S9 Good fit </div>	<div> T9 stable environment S9 Good fit </div> <div> T10 turbulent environment S10 Good fit </div>

fig.1

CASES OF VARIOUS TYPES OF CORPORATE STRATEGY MAKING PROCESS; MANUFACTURING STRATEGY MAKING PROCESS
USED IN CONJUNCTION WITH THE TWO CATEGORIES OF ENVIRONMENT (EXTREME CASES)

T1	Rational strategies are not possible in turbulent environments. What is followed in turbulent environment is “incremental “.Quinn (1980), Lindblom (1959) and Cyert (1963).
S1	Good fit ; self explanatory.
S2 and T2	We are still undecided; may be taken up in future research.
S3 and T3	Already considered but not in detail.
S4 and T4	Intuitively we feel it should be a good fit though theoretical explanations are not possible at this stage.
S5 and T5	Already considered in hypothesis 2.
S6 and T6	We feel that such a situation leads to oligopoly, due to excess capacity in the manufacturing and poor growth in sales.
S7 and T7	Poor fit. Intuitively we feel it should be a poor fit though theoretical explanations are not possible at this stage.
S8 and T8	Manufacturing functions are ignored as was evidence in “Dansk Design” case. It leads to development of competitors who were our subcontractors, though theoretical explanations are not done.
S9 and T9	Already explored in hypothesis 5.

CHAPTER 6

CONCLUSION AND FUTURE RESEARCH

In this study which we had carried out, we were able to establish to a substantial extent the mutual influence and performance of the processes of corporate strategy and manufacturing strategy. Though any generalization warrants further studies, we have however succeeded to a major extent to establish the fact that if a firm pursues a rational approach to corporate strategy making process, then it has maximum chances of having a good alignment between corporate strategy and manufacturing strategy. A reasonable amount of work has been done on building up the theory for the above, however a comparatively lesser amount of effort have been put in for empirical verification. This was due to time and resource constraints and hence generalization of it could only be done after conducting further research on this . However on an average we were able to get sufficient support for our hypothesis developed.

However our study has not been without limitations. Some of them are as follows:

- a. We have referred only to manufacturing firms only. The study could be further extended to other types of firms also.
- b. While identifying corporate strategy as incremental we could not, in some cases we did not have the market share data and hence our findings may be somewhat limited.
- c. Effects of internal environment were ignored in our study and it was assumed that the firms had more or less a total control over the internal environment, and also external environment influences to a substantial extent the internal environment.

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FACTORS AND COMPONENTS COMPRISING THE ORGANIZATION'S INTERNAL AND EXTERNAL ENVIRONMENT:

INTERNAL ENVIRONMENT:

1. ORGANIZATIONAL PERSONAL COMPONENT

- (A) Educational and technological background and skills
- (B) Previous technological and managerial skill
- (C) Individual member's involvement and commitment to attain system's goals
- (D) Interpersonal behavior styles
- (E) Availability of manpower for utilization within the system

2. ORGANIZATIONAL FUNCTIONAL AND STAFF UNITS COMPONENT

- (A) Technological characteristics of organizational units
- (B) Interdependence of organizational units in carrying out their objectives
- (C) Intra-unit conflict among organizational functional and staff units
- (D) Inter-unit conflict among organizational functional and staff units

3. ORGANIZATIONAL LEVEL COMPONENT

- (A) Organizational objectives and goals
- (B) Integrative process integrating individuals and groups into contributing maximally to attaining organizational goals
- (C) Nature of the organization's product service

EXTERNAL ENVIRONMENT

4. CUSTOMER COMPONENT

- (A) Distributors of product or service
- (B) Actual users of product and services

5. SUPPLIERS COMPONENT

- (A) New material suppliers
- (B) Equipment suppliers
- (C) Product part suppliers
- (D) Labor supply

6. COMPETITOR COMPONENT

- (A) Competitors for suppliers
- (B) Competitors for suppliers

7. SOCIO-POLITICAL COMPONENT

- (A) Government regulatory control over the industry
- (B) Public political attitude towards industry and its particular product
- (C) Relationship with trade unions with jurisdiction in the organization

8. TECHNOLOGICAL COMPONENT

- (A) Meeting new technological requirements of own industry and related industries in production of product or services
- (B) Improving and developing new products by implementing new technological advances in the industry

LIST OF COMPANIES

INDUSTRY		COMPANIES			
CEMENTS	ACC	INDIA CEMENTS	COROMANDAL	DALMIA	
COOKERS	HAWKINS				
FORGINGS	BHARAT FORGE				
LCV's/MCV's	TELCO	EICHER	ASHOK LEYLAND		
MACHINARIES	BIRLA YAMAHA	BATLIBOI	KIRLOSKAR		
PAINTS	SHALIMAR	ASIAN PAINTS	NEROLAC		
STEEL	SAIL	TISCO			
TELEVISION	UPTRON				
TEXTILES	RELIANCE				
TWO WHEELERS	HERO HONDA				
TYRES	DUNLOP	JK TYRES	SRI CHAKRA	VIKRANT	
WATCHES	TITAN				

Scale on Environment

1. Variability in sales.
2. Leading competitors.
3. Market shares of self and competitor Companies.
4. Expenditure on marketing function across years as a percentage of sales.
5. Variability in cost of raw materials consumed as a percentage of sales.
6. Financial policy of operating, financial and combined leverages.
7. Expenditure in R & D across years as a percentage of sales.
8. Licensed capacity, installed capacity and actual production across years.
9. Investments (cumulative) in manufacturing resources.
10. Investments in manufacturing resources/year.
11. Manufacturing investments as a percentage of sales.
12. Manufacturing investments as a percentage of total assets.
13. ROI performance across years.
14. Net profits/Total Assets performance across years.

Scale on Realized Corporate Strategy

Integrated Strategy/Comprehensive Strategy/Rational

1. Cost leadership, extensive automation, attracting a large market share, over all less percentage of cost of materials consumed as compared to sales.
2. Investing highly in high quality equipment, at the same time keeping high market share of the top end of the market by increased investments in advertising.
3. Renaming focussed on niche markets by appropriately identifying the market needs.
4. Aggressive R & D investments to develop new products.

Assertiveness (proactiveness/bold strategy)

1. Larger investment in manufacturing facilities.
2. Larger investment in advertising.
3. Investments are made ahead of competitors.
4. Higher level of risk as reflected in operating, financial and combined leverages.

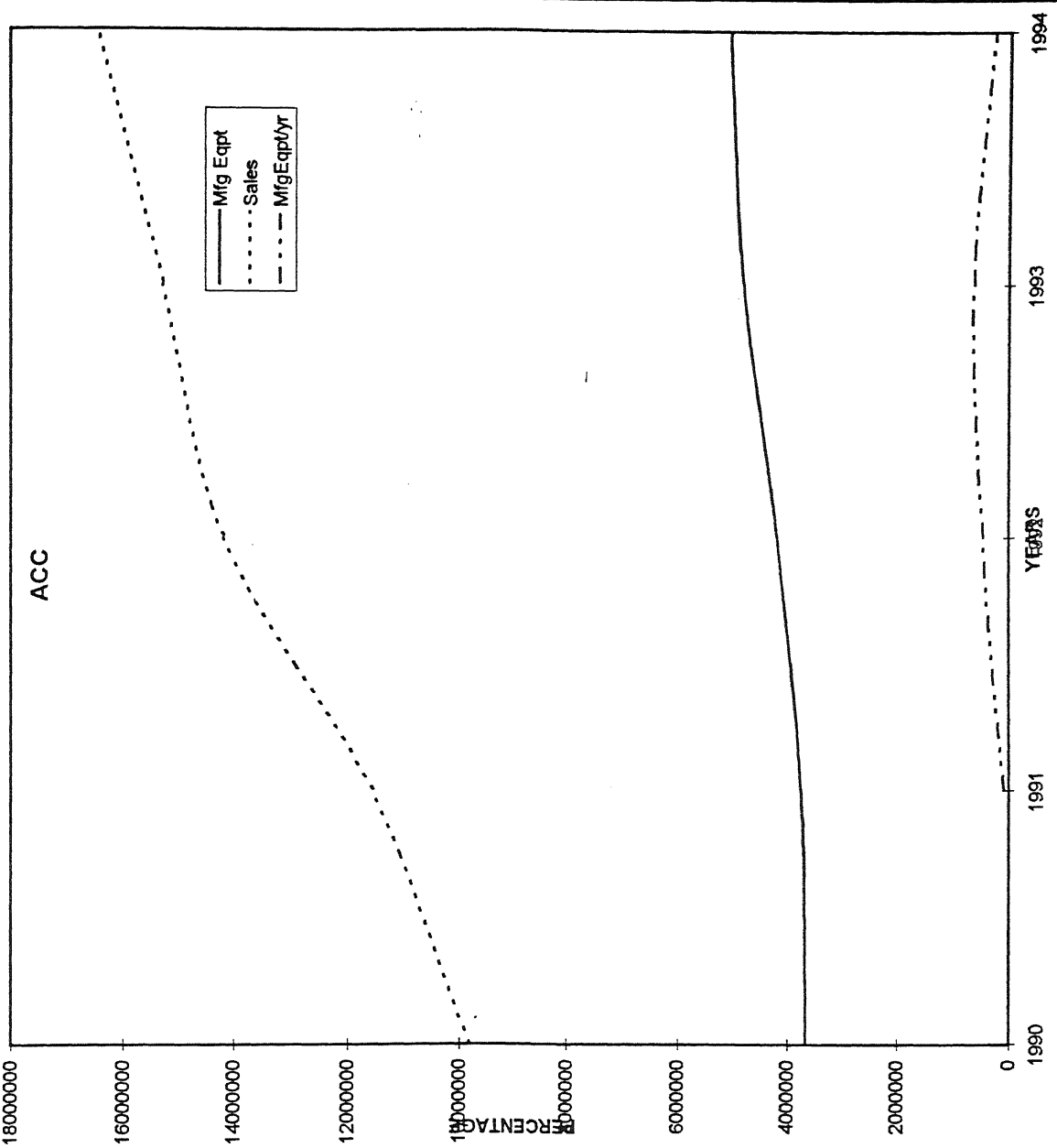
Adoptive/(incremental) Strategy

1. Incremental increase in sales.
2. Incremental increases or decreases in market share.
3. Incremental changes in capacity additions.

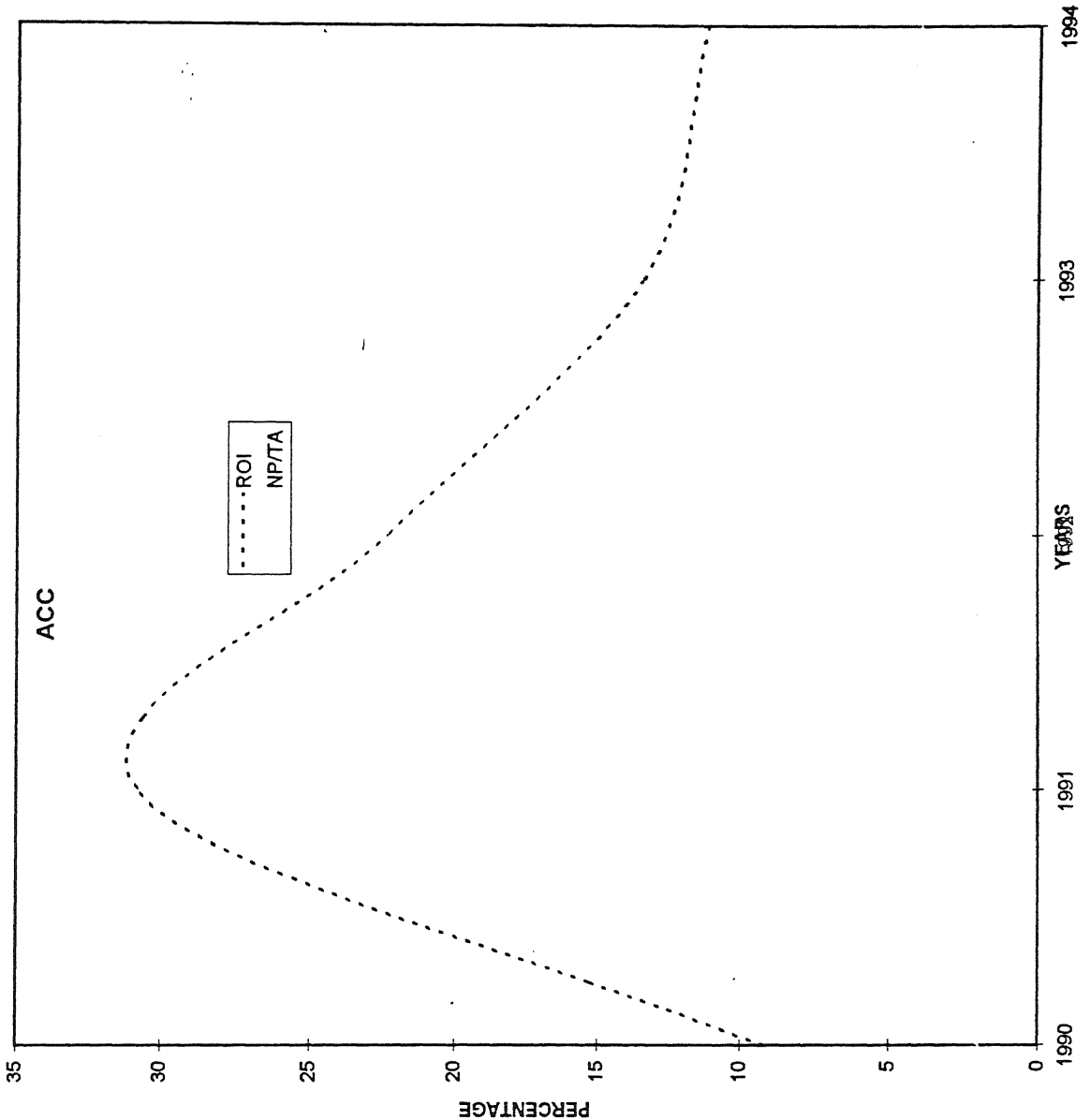
Scale on Manufacturing Strategy

1. Plant and Equipment.
2. Production, Planning and Control for dependability and speed of delivery and for product volume and variety.
3. Labor and staffing.
4. Product engineering and design.
5. Organization and management.
6. Capital spending decision and manufacturing systems and people.
7. Vertical integration.
8. Technology policy for quality products.
9. Capacity Installed.
10. Fit between product process and product life cycles.

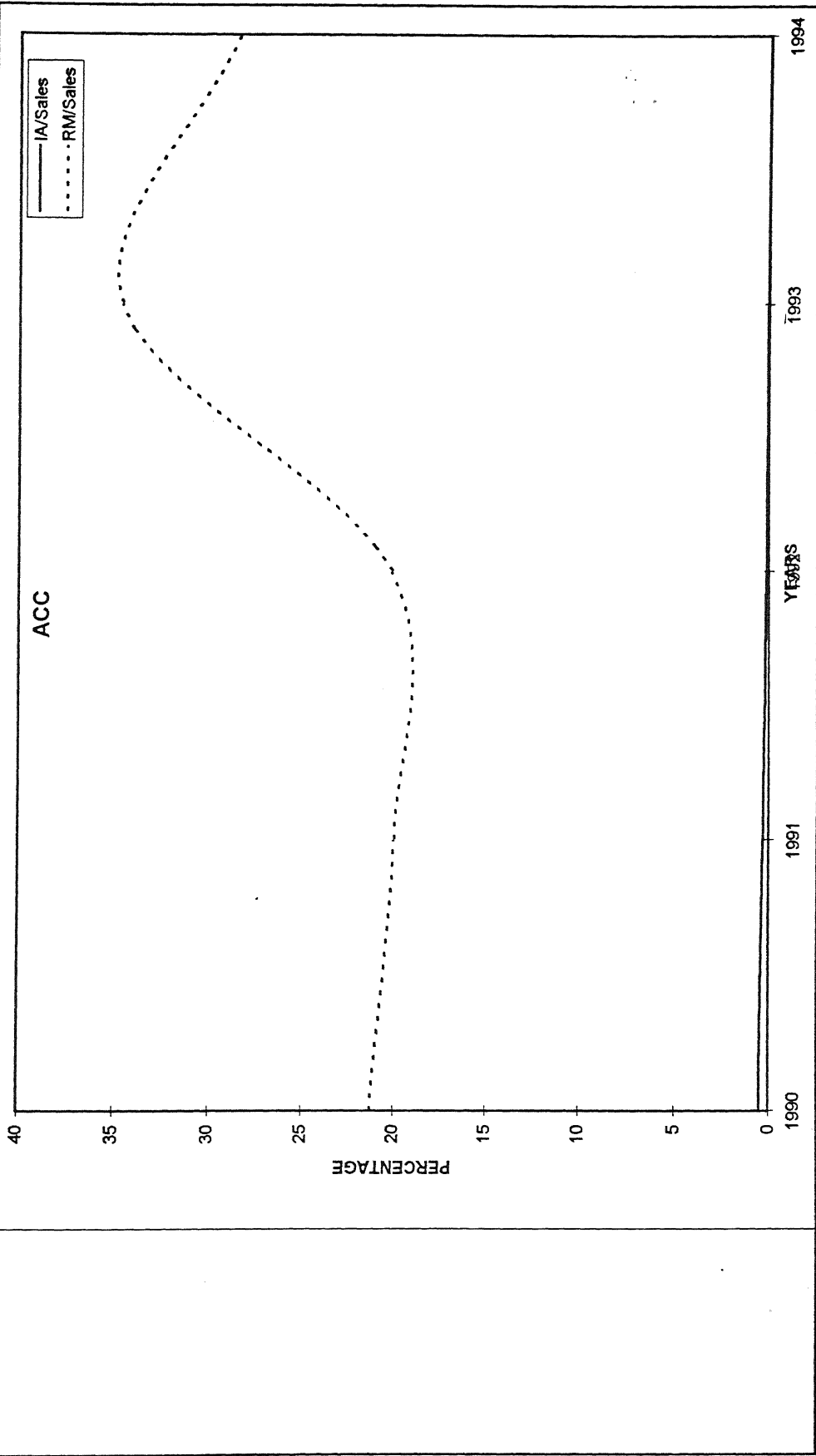
Years	Mfg Eqpt	Sales	MfgEqpt/yr
1990	3667634	9794120	
1991	3750938	11544623	83304
1992	4205100	14169300	454162
1993	4828200	15268900	623100
1994	5073300	16421600	245100



Years	ROI	NP/TA
1990	9.13	2
1991	30.77	15
1992	22.3	11
1993	13.45	5
1994	11.18	4



Years	Sales	Int Assets	Raw Mtrls	IA/Sales	RM/Sales	
1990	9794120	49952	2081460	0.51002	21.25214	
1991	11544623	34806	2303934	0.301491	19.95677	
1992	14169300	20400	2849100	0.143973	20.10756	
1993	15268900	9600	5278400	0.062873	34.56962	
1994	16421600	3900	4661300	0.023749	28.38518	



COMPANY NAME: A C C

PRODUCT : CEMENTS

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	Sales are up moderately	
2.	MARKETING EXPENDITURE (% of Sales)	13 to 14 %	
3.	COST OF RAW MATERIALS (% of Sales)	20 to 28 %	
4.	MARKET SHARES	14 %	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0 to 0.5 %	
6.	COMPETITORS	1.DALMIA (14%) 2.BIRLA (4.9%) 3.CCI (5%) 4.COROMONDAL(0.1%) Average 35 %	
7.	INVESTMENT IN PLANT & MACHINARY (% of Sales)	56 % down to 35 %	
8.	INVESTMENT IN PLANT & MACHINARY (% of Total Assets)	Greater than 10 % upto 30%	
9.	ROI PERFORMANCE	2 to 15 %	
10.	NET PROFIT/TOTAL ASSETS	Installed 79.83 Lacs Actual 77.25 Lacs	
11.	CAPACITY UTILIZATION		Good utilization

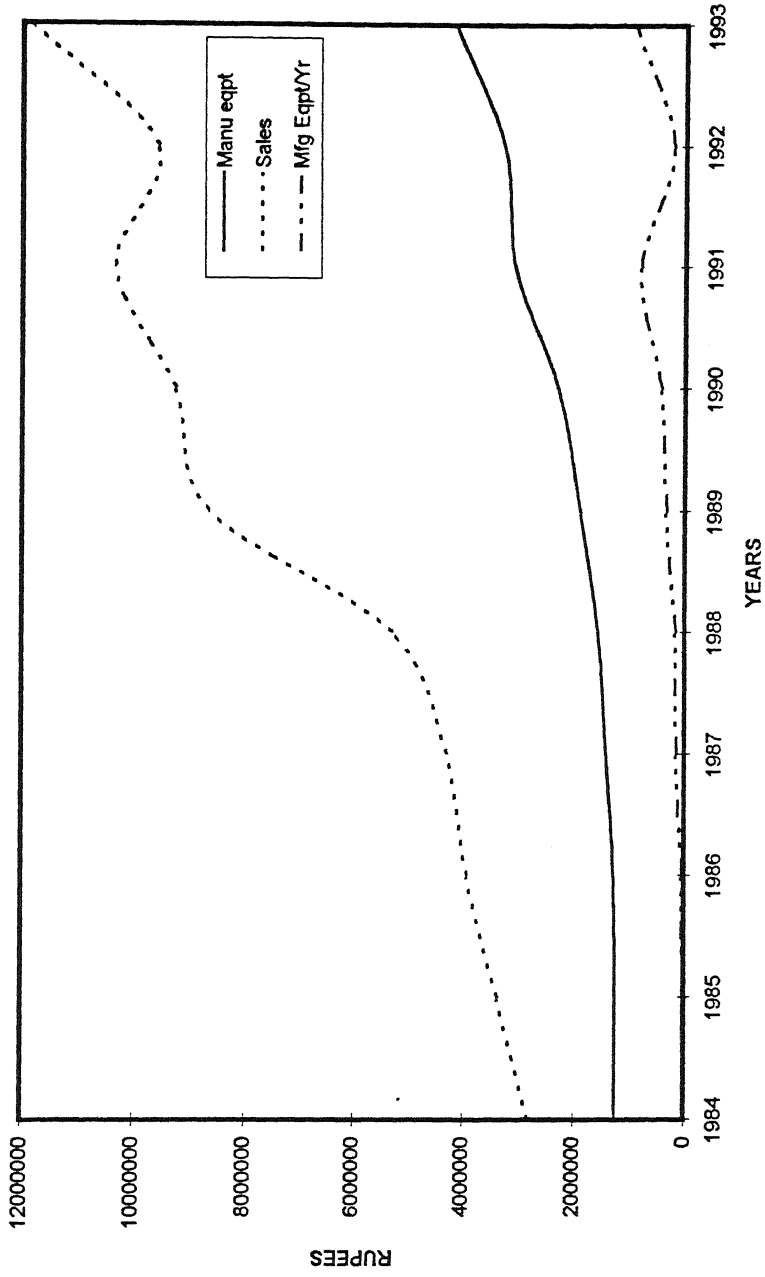
JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Competition is severe ; but profitability is good.
2. Environment is moderately turbulent ; manufacturing strategy followed is incremental .

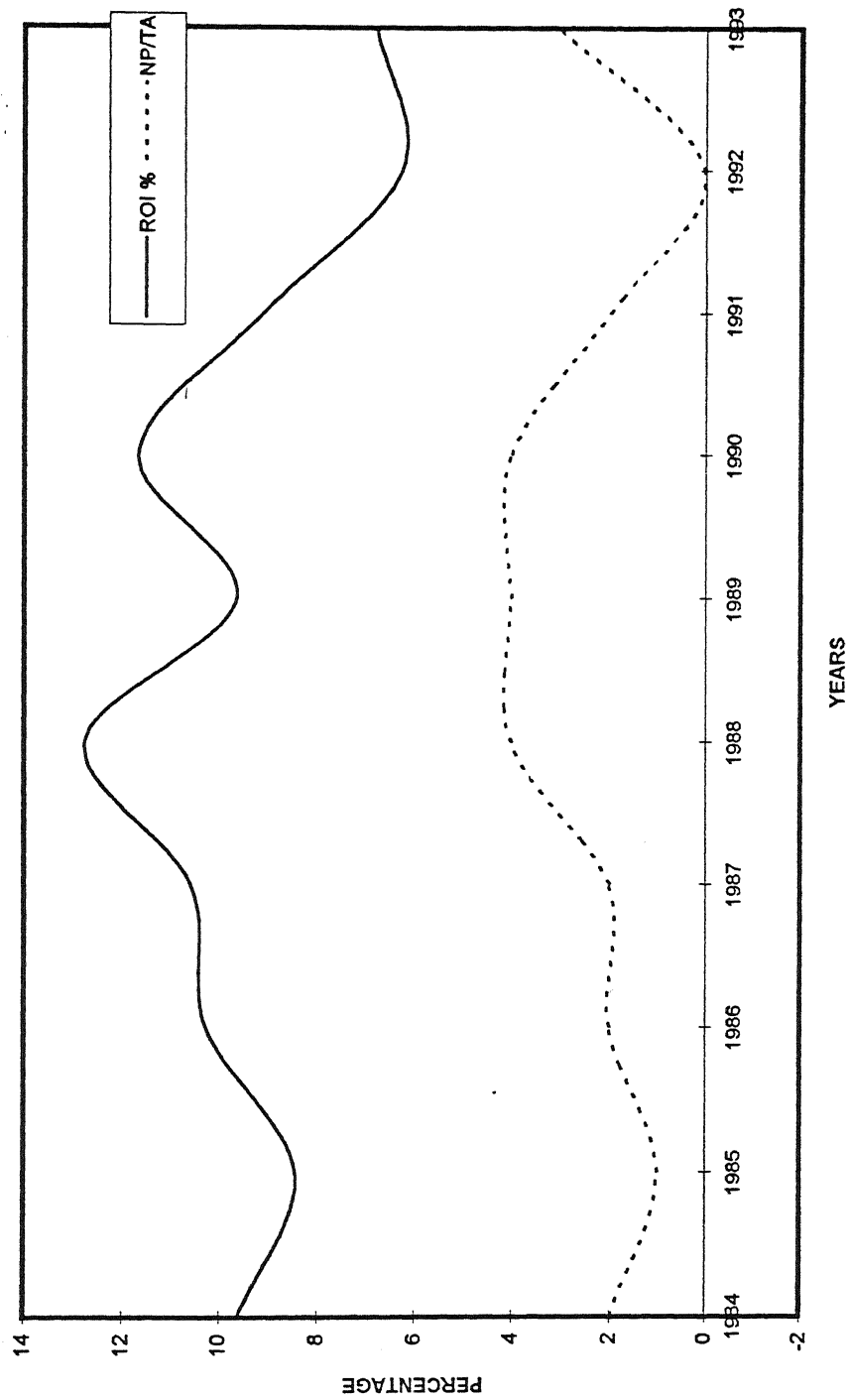
Verifies Proposition No: 2 & 4(a)

Years	Manu eqpt	Sales	Mfg Eqpt/Yr
1984	1238021	2818596	
1985	1247135	3366400	9114
1986	1281703	3928006	34568
1987	1415259	4284873	133556
1988	1573007	5278530	157748
1989	1895352	8615451	322345
1990	2303199	9228999	407847
1991	3087137	10306515	783938
1992	3284777	9544358	197640
1993	4172196	11812953	887419

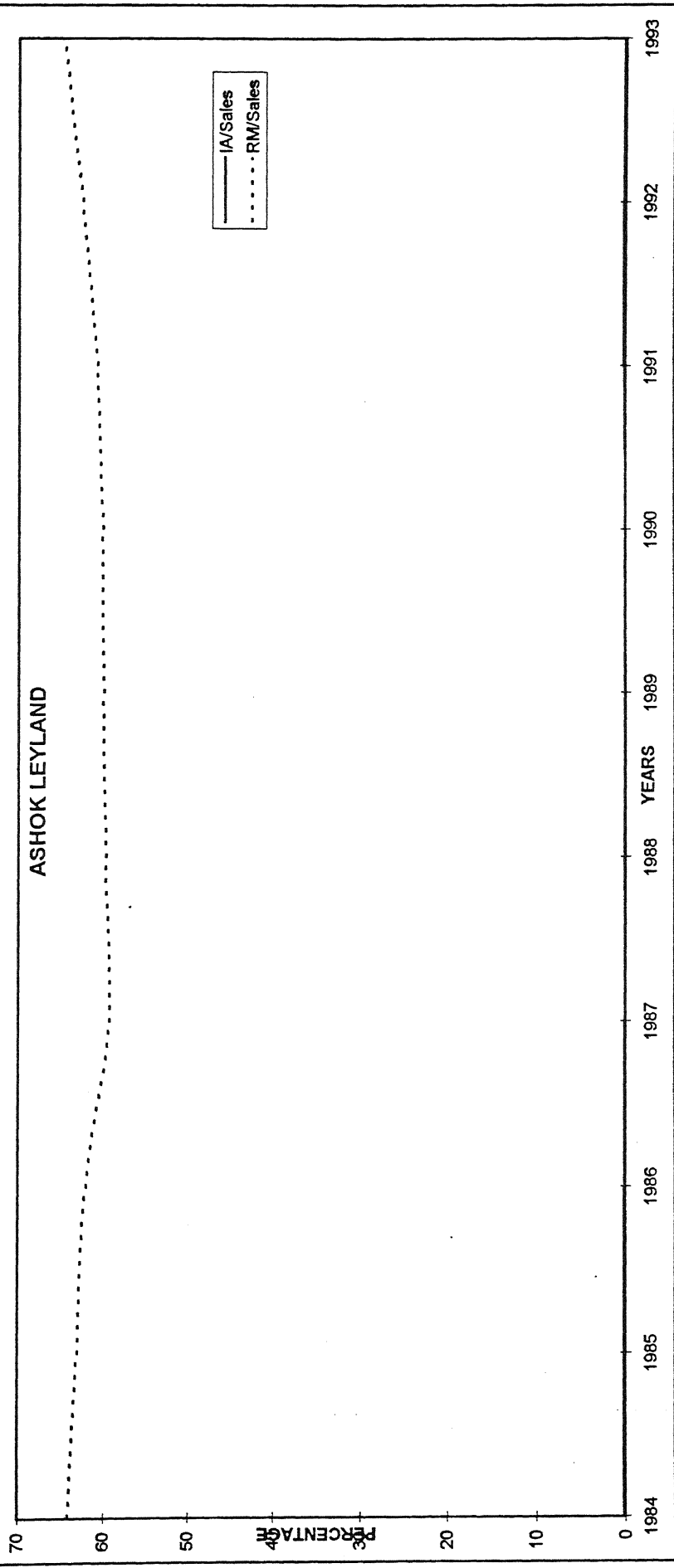
ASHOK LEYLAND



Years	ROI %	NP/TA
1984	9.63	2
1985	8.44	1
1986	10.29	2
1987	10.6	2
1988	12.78	4
1989	9.67	4
1990	11.69	4
1991	9.13	2
1992	6.28	0
1993	6.81	3



Years	Sales	Int Assets	Raw Mtrls	IA/Sales	RM/Sales							
1984	2818596	6086	180885	0.215923	64.17681							
1985	3366400	5072	2120838	0.150665	63.00018							
1986	3928006	6090	2438036	0.15504	62.06803							
1987	4284873	4740	2540540	0.110622	59.29091							
1988	5278530	3400	3151196	0.064412	59.69836							
1989	8615451	7069	5163499	0.08205	59.93301							
1990	9228999	5148	5543140	0.055781	60.0622							
1991	10306515	20940	6255858	0.203172	60.69809							
1992	9544358	18360	5960306	0.192365	62.44847							
1993	11812953	15151	7618259	0.128258	64.49072							



COMPANY NAME: ASHOK LEYLAND

PRODUCT : LCV/MCV

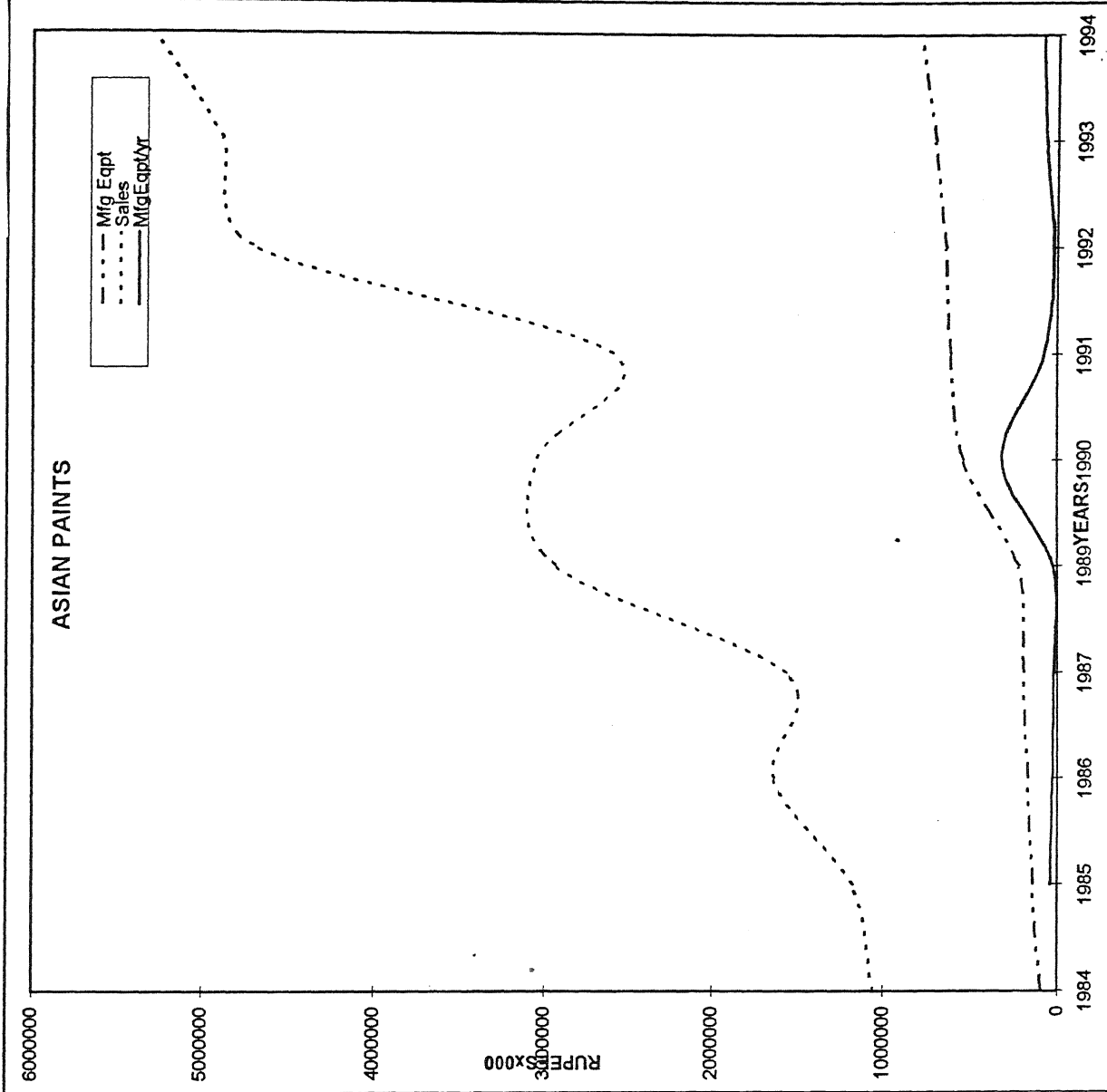
S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	Average rise of around 17% approx.	
2.	MARKETING EXPENDITURE (% of Sales)	1.59; 1.43	
3.	COST OF RAW MATERIALS (% of Sales)	59 to 64 %	
4.	MARKET SHARES	20%	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0 to 0.2%	Very less
6.	COMPETITORS	1.TELCO(53.8%) 2.Bajaj (22%) 3.Eicher(6.6%)	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	22 to 44 %	
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	28 to 44 %	
9.	ROI PERFORMANCE	6 to 12 %	
10.	NET PROFIT/TOTAL ASSETS	0 to 4 %	
11.	CAPACITY UTILIZATION	Licensed Installed Actual	

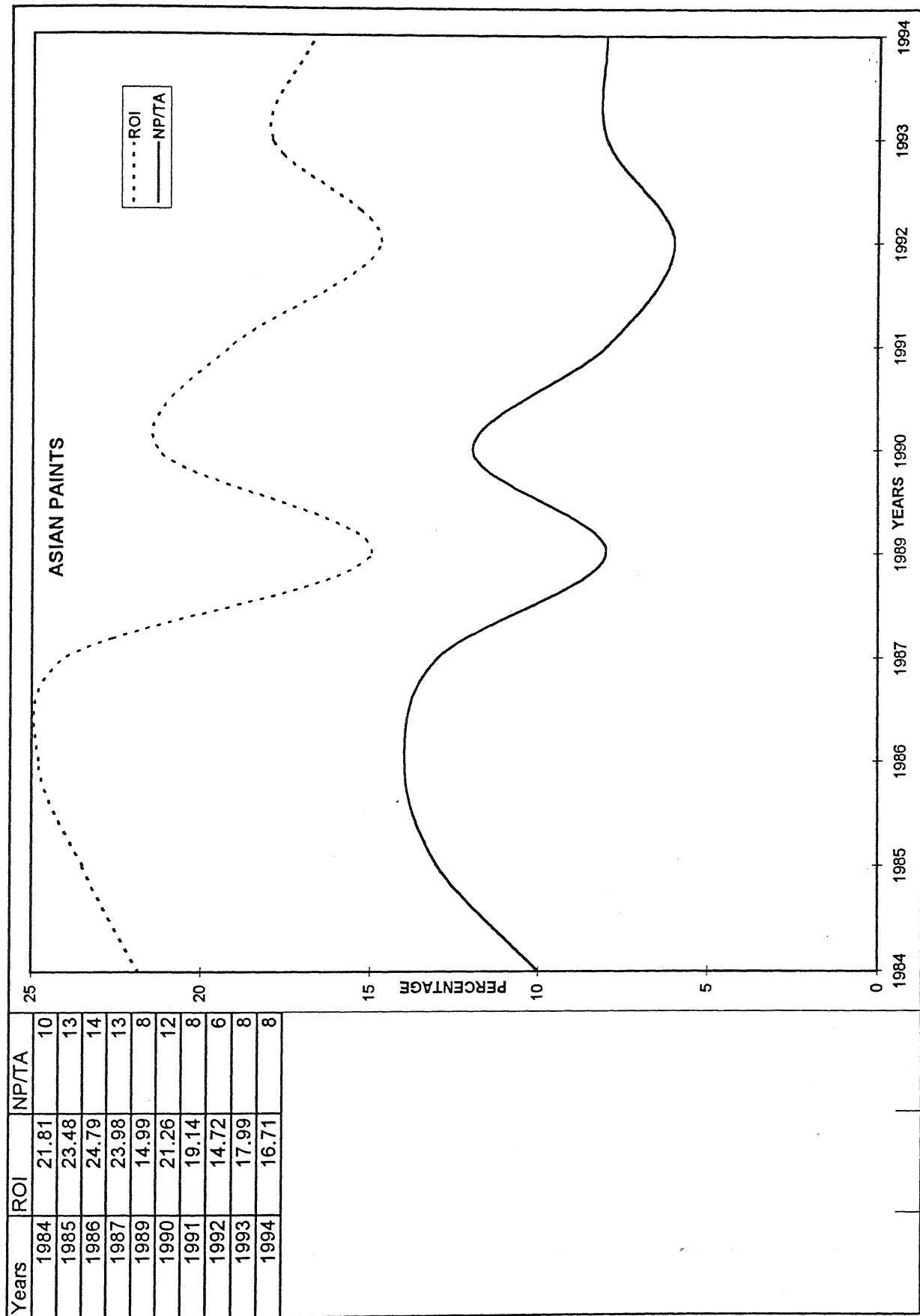
JUDGEMENT ABOUT ITS ENVIRONMENT:

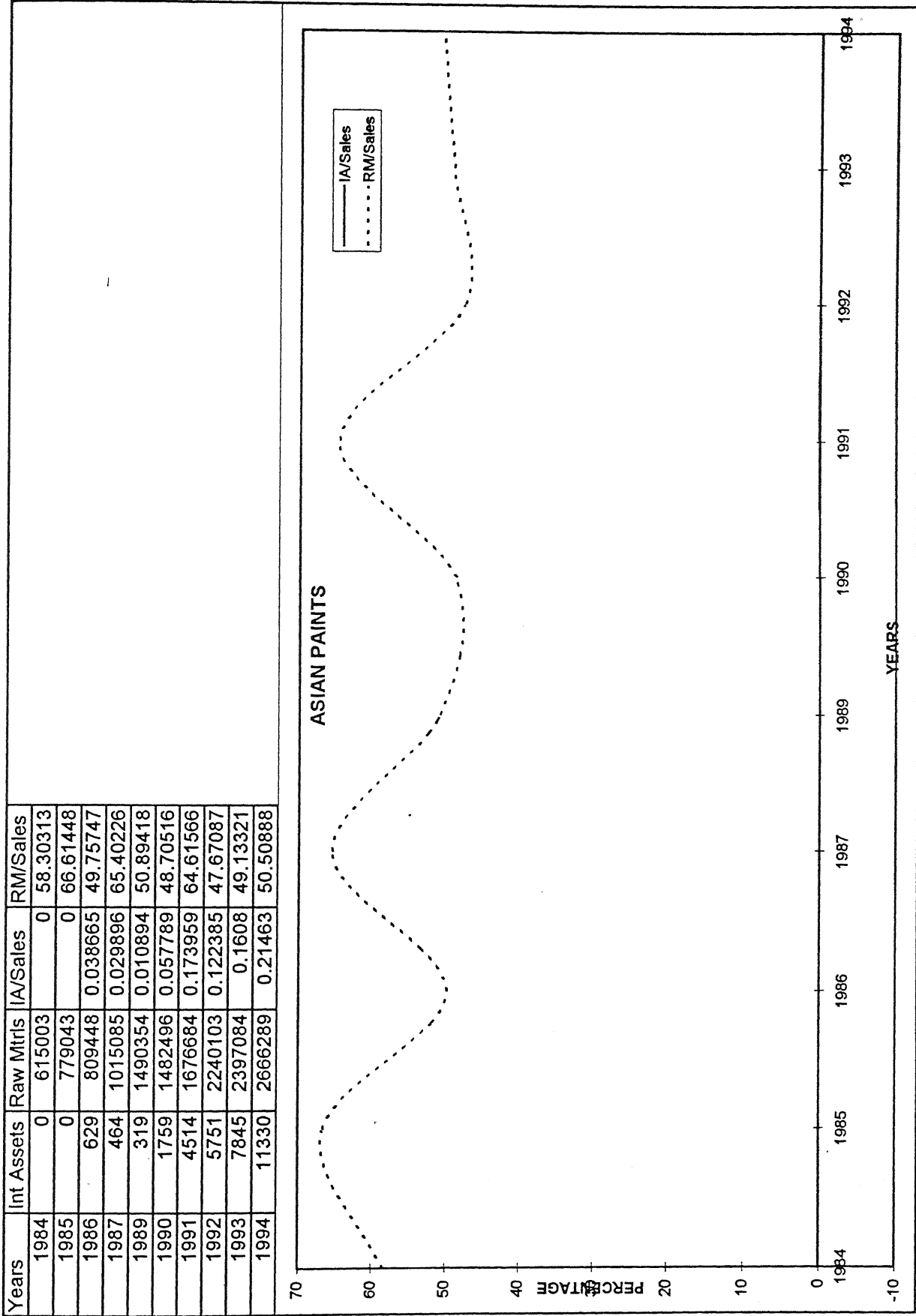
1. Competition is high.
2. Environment is stable.
3. Investment in plant and machinery is incremental.

Verifies Proposition No:2 & 4(b)

Years	Mfg Eqpt	Sales	MfgEqpt/yr
1984	92995	1054837	
1985	137268	1169480	44273
1986	166890	1626787	29622
1987	191958	1552064	25068
1989	217541	2928339	25583
1990	537087	3043817	319546
1991	612615	2594857	75528
1992	637164	4699102	24549
1993	701811	4878745	64647
1994	784296	5278852	82485







COMPANY NAME: ASIAN PAINTS

PRODUCT : PAINTS

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	Two big jumps of 85 % in '89 & '93.	
2.	MARKETING EXPENDITURE (% of Sales)	9 to 13 %	
3.	COST OF RAW MATERIALS (% of Sales)	47 to 66 %	
4.	MARKET SHARES	25.3%	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	NA	
6.	COMPETITORS	1.Shalimar (4.8%) 2.Nerolac (12.1%) 3.Berger Paints (8.7%) 4.ICJ(India) (7.6%)	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	15 % average	
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	30 % average	
9.	ROI PERFORMANCE	fluctuating 15 to 22 %	
10.	NET PROFIT/TOTAL ASSETS	follows same pattern	
11.	CAPACITY UTILIZATION	<u>Licensed</u> NA <u>Installed</u> NA <u>Actual</u> NA	

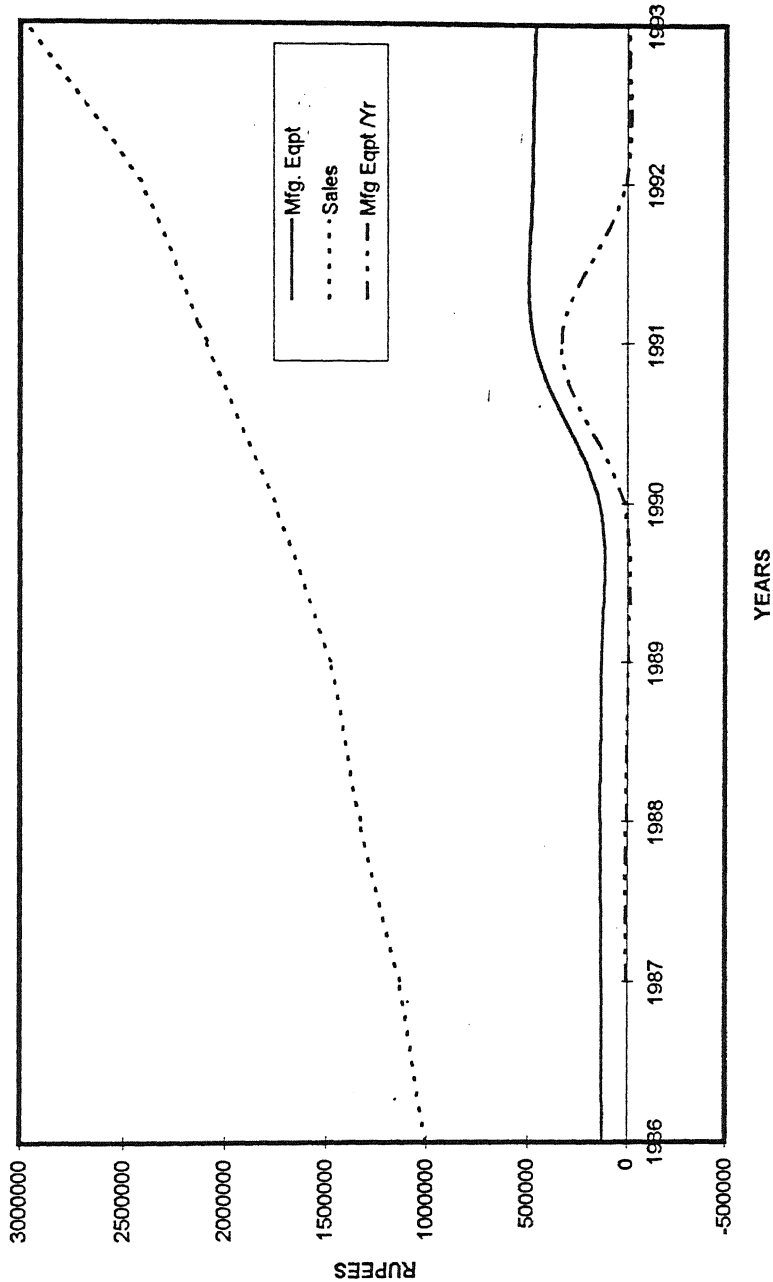
JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Competition is severe .
2. Manufacturing strategy is followed is one bold step in '90 and then incremental.

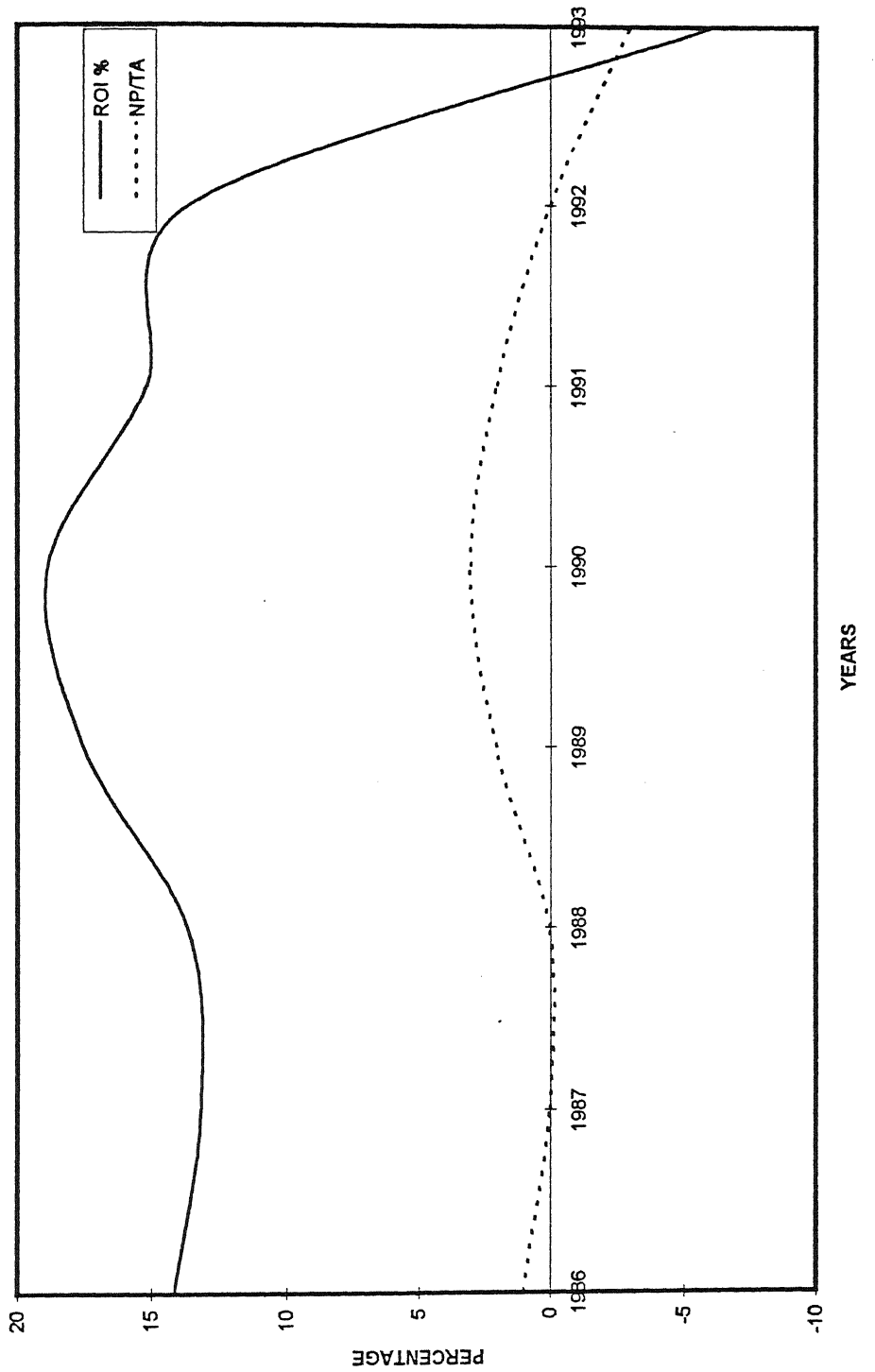
Verifies Proposition No:5 , 4(a) and negates 2

BATLIBOI

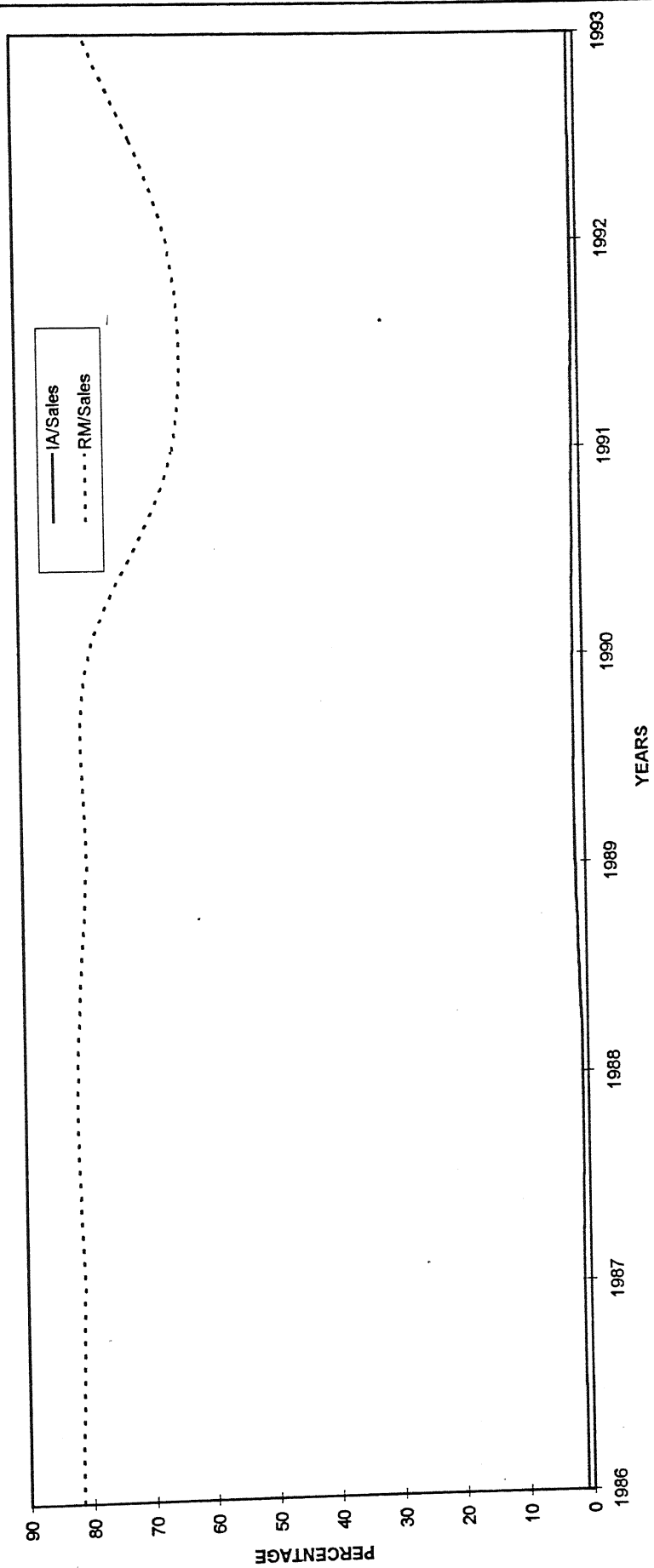
Years	Mfg. Eqpt	Sales	Mfg Eqpt /Yr
1986	125903	1002649	
1987	132106	1131113	6203
1988	137477	1328724	5371
1989	130388	1476817	-7089
1990	140741	1749985	10353
1991	466050	2089849	325309
1992	474325	2415539	8275
1993	456648	2972202	-17677



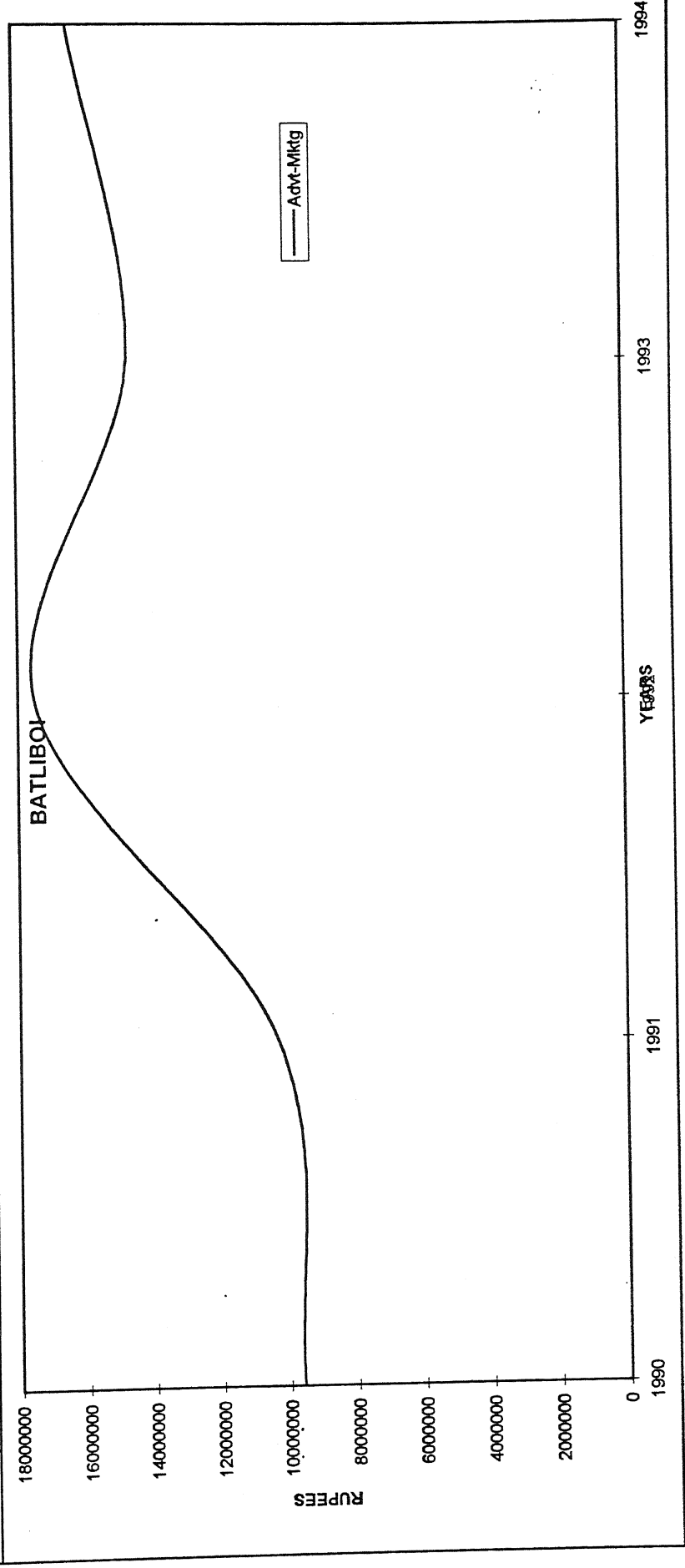
Years	ROI %	NP/TA
1986	14.15	1
1987	13.16	0
1988	13.67	0
1989	17.54	2
1990	18.88	3
1991	15.17	2
1992	13.58	0
1993	-6.17	-3



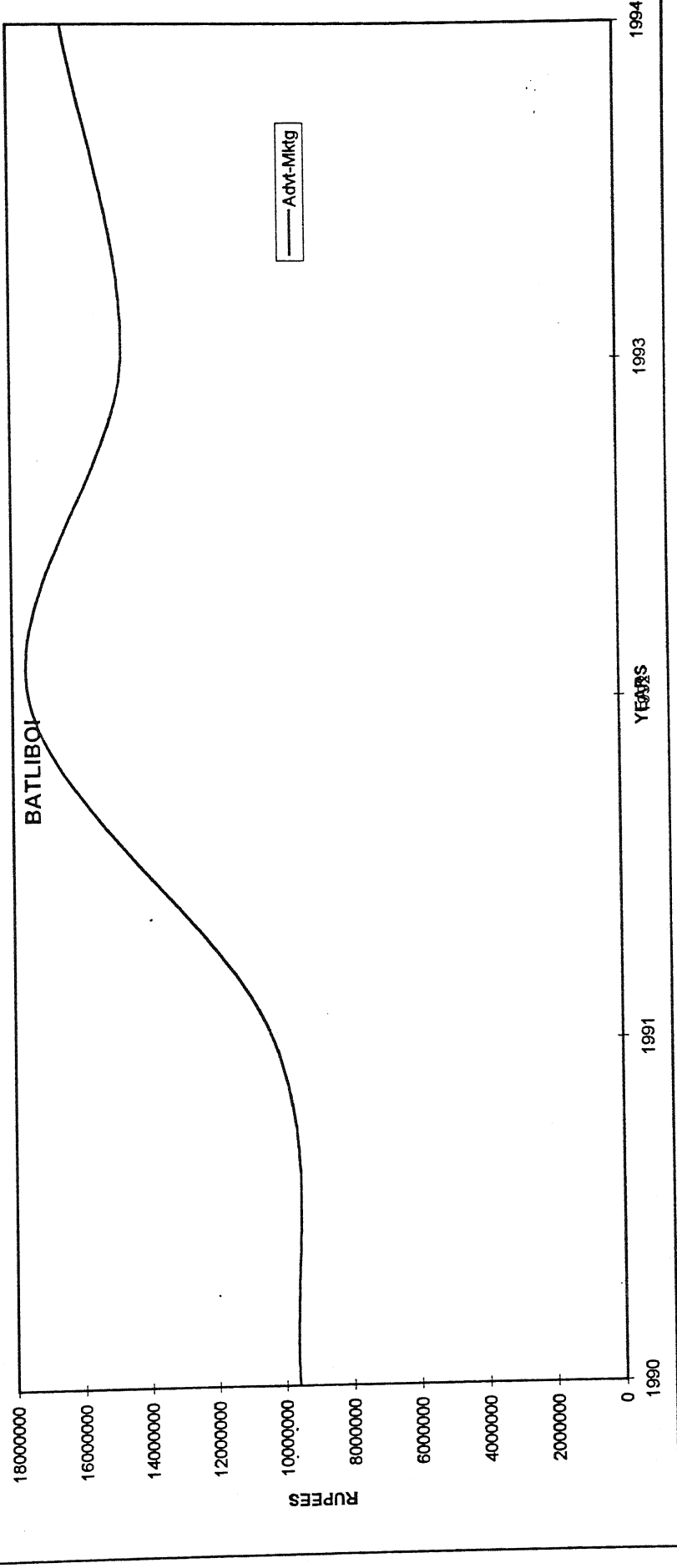
Years	Sales	Int.Assets	Raw Mtrls	IA/Sales	RM/Sales
1986	1002649	10025	818745	0.999851	81.65819
1987	1131113	13342	916290	1.179546	81.00782
1988	1328724	12415	1085194	0.934355	81.67189
1989	1476817	23493	1179720	1.590786	79.88261
1990	1749985	26481	1385439	1.513213	79.16862
1991	2089849	24055	1361307	1.15104	65.13901
1992	2415539	22897	1582449	0.947904	65.51122
1993	2972202	31912	2335123	1.073682	78.56542



Years	Advt-Mktg
1986	
1987	
1988	
1989	
1990	9600000
1991	10300000
1992	17500000
1993	14700000
1994	16400000



Years	Advt-Mktg
1986	
1987	
1988	
1989	
1990	9600000
1991	10300000
1992	17500000
1993	14700000
1994	16400000



Appendix" D5"
PRODUCT : ENGINEERING MACHINERY

COMPANY NAME: BATLIBOI

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	On the rise	Sales goes up yearly by less than 5%.
2.	MARKETING EXPENDITURE (% of Sales)	Less than 1%. Absolute value 1 to 6 Crore.	
3.	COST OF RAW MATERIALS (% of Sales)	61 to 81%.	High
4.	MARKET SHARES	Approx 11%	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	1%.	Moderate due to low profitability
6.	COMPETITORS	1.HMT (28%) 2.WIDIA(INDIA)(10.8) 3. 4.	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	12.5 to 15%	Less than 15%
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	20 to 33%	
9.	ROI PERFORMANCE		Good ROI performance initially but recently fallen down. Went down sharply due to one large investment in '91.
10.	NET PROFIT/TOTAL ASSETS		
11.	CAPACITY UTILIZATION	<u>Licensed</u> <u>Installed</u> <u>Actual</u>	

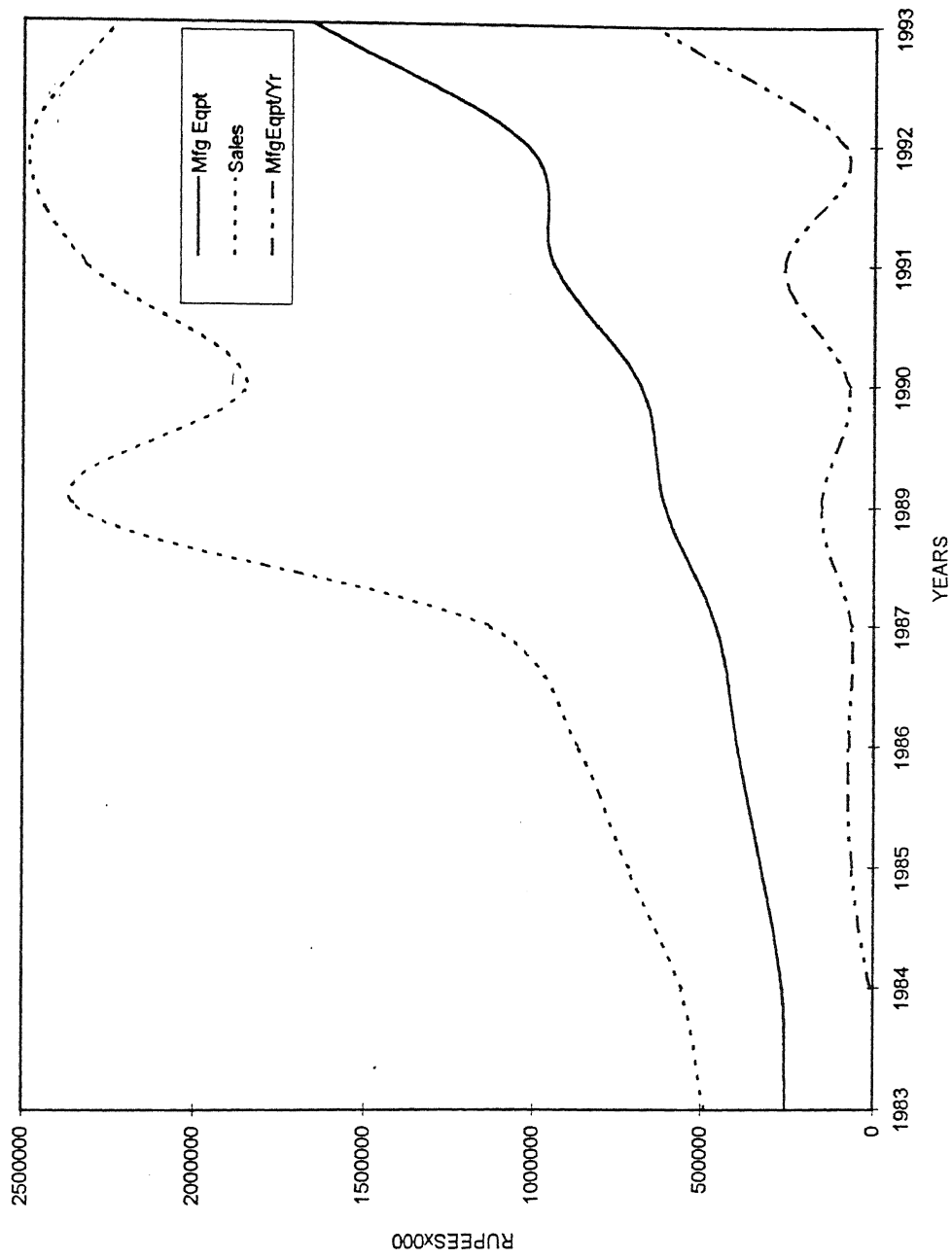
JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Competition is severe-- no. of competitors are more.
2. Environment is tough and turbulent though sales are up by 5% approx every year. They are not investing substantially

Verifies Proposition No:2 & 4(a).

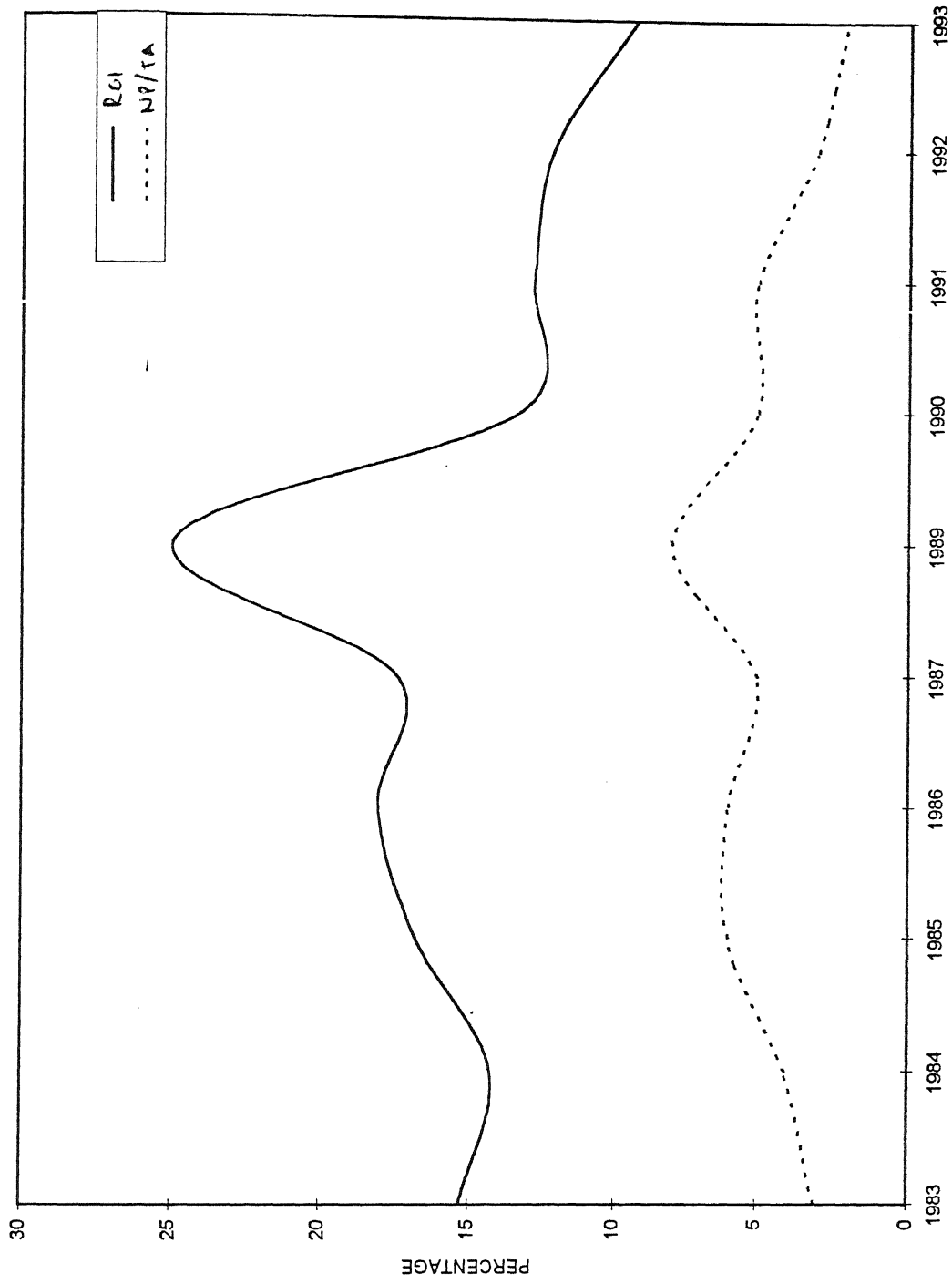
Years	Mfg Eqpt	Sales	MfgEqpt/Yr
1983	256393	488313	
1984	265293	556056	8900
1985	326698	714199	61405
1986	397624	865212	70926
1987	459649	1132439	62025
1989	611564	2351072	151915
1990	683195	1847229	71631
1991	943260	2321531	260065
1992	1025437	2480177	82177
1993	1658946	2223252	633509

BHARAT FORGE

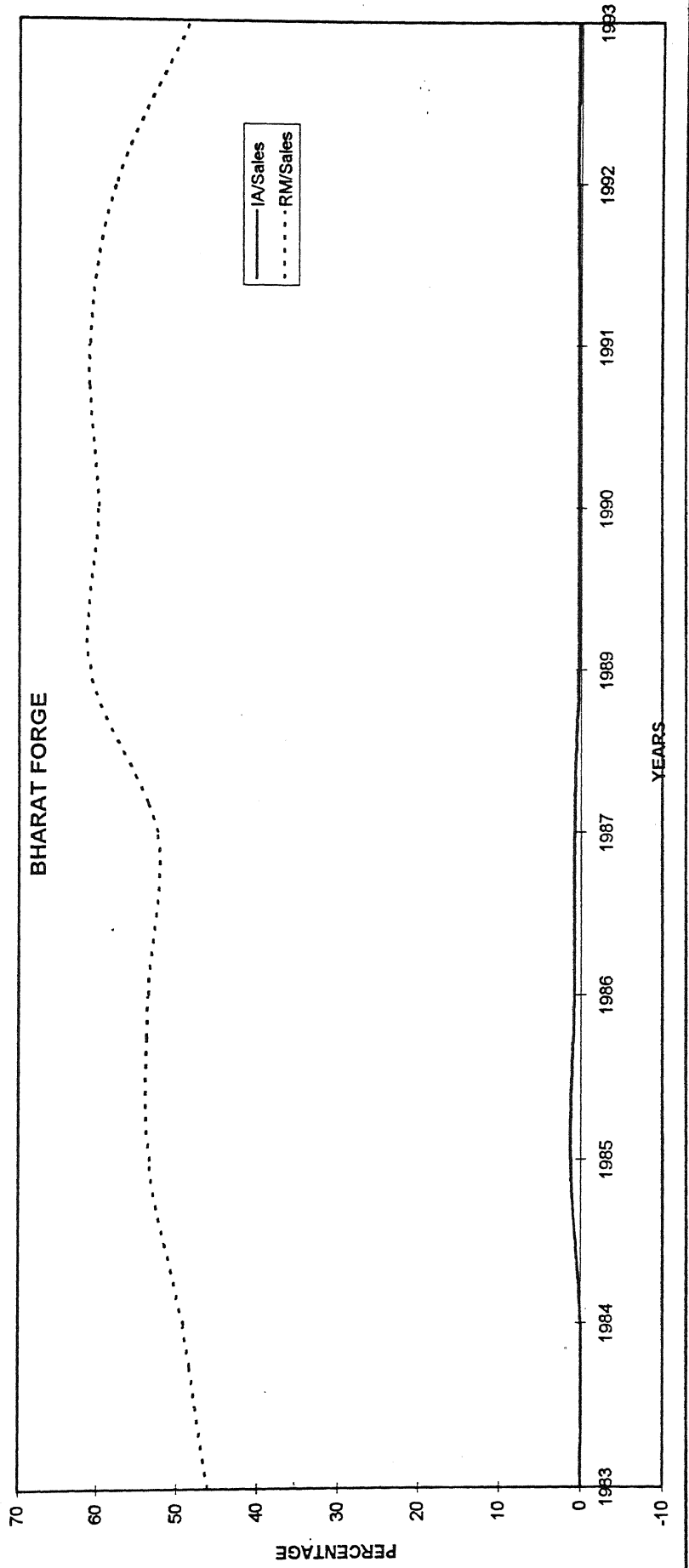


Appendix "E2"

Years	ROI	NP/TA
1983	15.31	3
1984	14.26	4
1985	16.82	6
1986	18.08	6
1987	17.49	5
1989	24.93	8
1990	13.25	5
1991	12.85	5
1992	12.16	3
1993	9.31	2



Years	Sales	Int Assets	Raw Mtrls	IA/Sales	RM/Sales
1983	488313	0	225151	0	46.10793
1984	556056	0	273169	0	49.12617
1985	714199	8791	381314	1.230889	53.39044
1986	865212	6593	463517	0.76201	53.57265
1987	1132439	8530	593922	0.753241	52.44627
1989	2351072	7093	1431249	0.301692	60.87644
1990	1847229	4522	1106035	0.244799	59.87536
1991	2321531	4944	1415859	0.212963	60.98816
1992	2480177	9663	1429131	0.389609	57.62214
1993	2223252	6850	1076523	0.308107	48.4211



COMPANY NAME: BHARAT FORGE

PRODUCT : FORGINGS

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	fluctuating , but on the rise	
2.	MARKETING EXPENDITURE (% of Sales)	0%	
3.	COST OF RAW MATERIALS (% of Sales)	46 to 60%	
4.	MARKET SHARES	NA	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0.2 to 1.2%	
6.	COMPETITORS	NA	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	40 to 75%	
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	40%	
9.	ROI PERFORMANCE	15 to 25%	
10.	NET PROFIT/TOTAL ASSETS	2 to 8 %	
11.	CAPACITY UTILIZATION	<u>Licensed</u> 70,000 <u>Installed</u> 63,000 <u>Actual</u> 17,000 to 54,000	

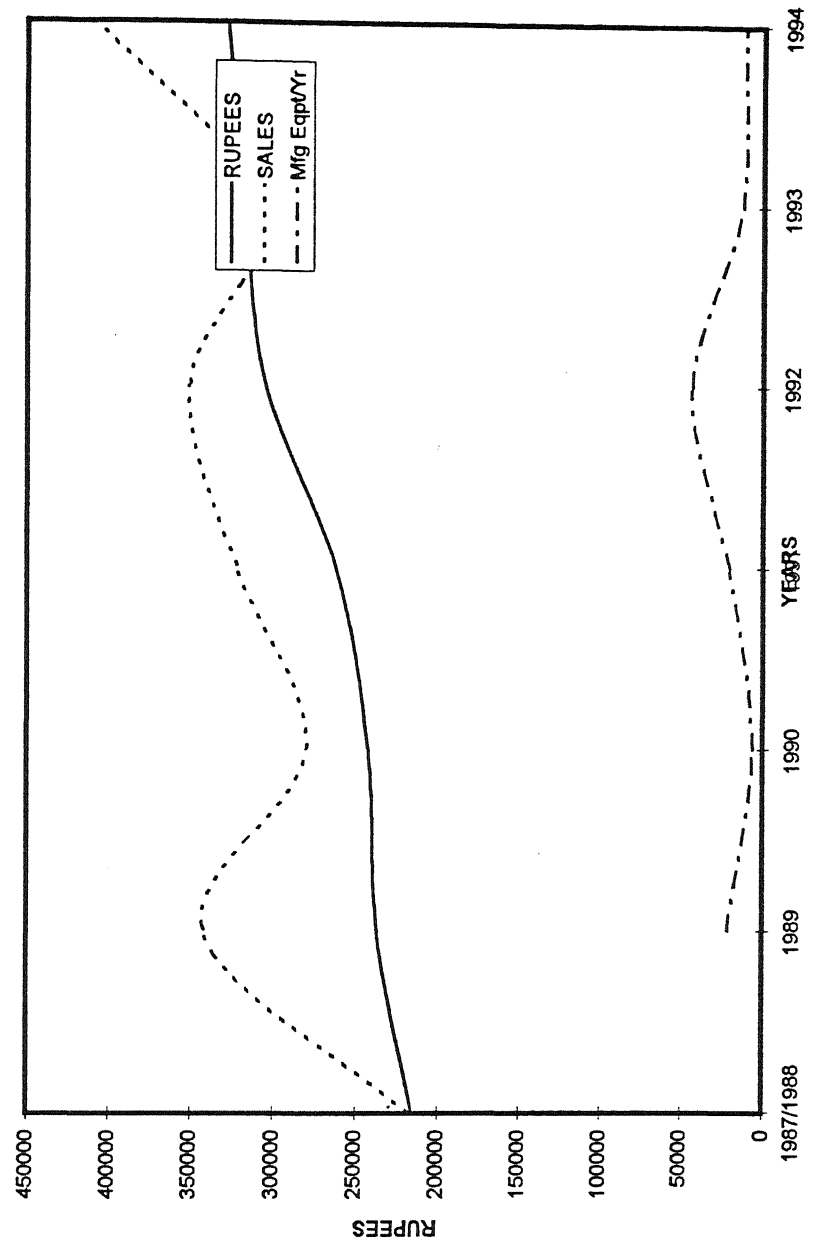
JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Environment is stable; competition is not much ; firm doing well.

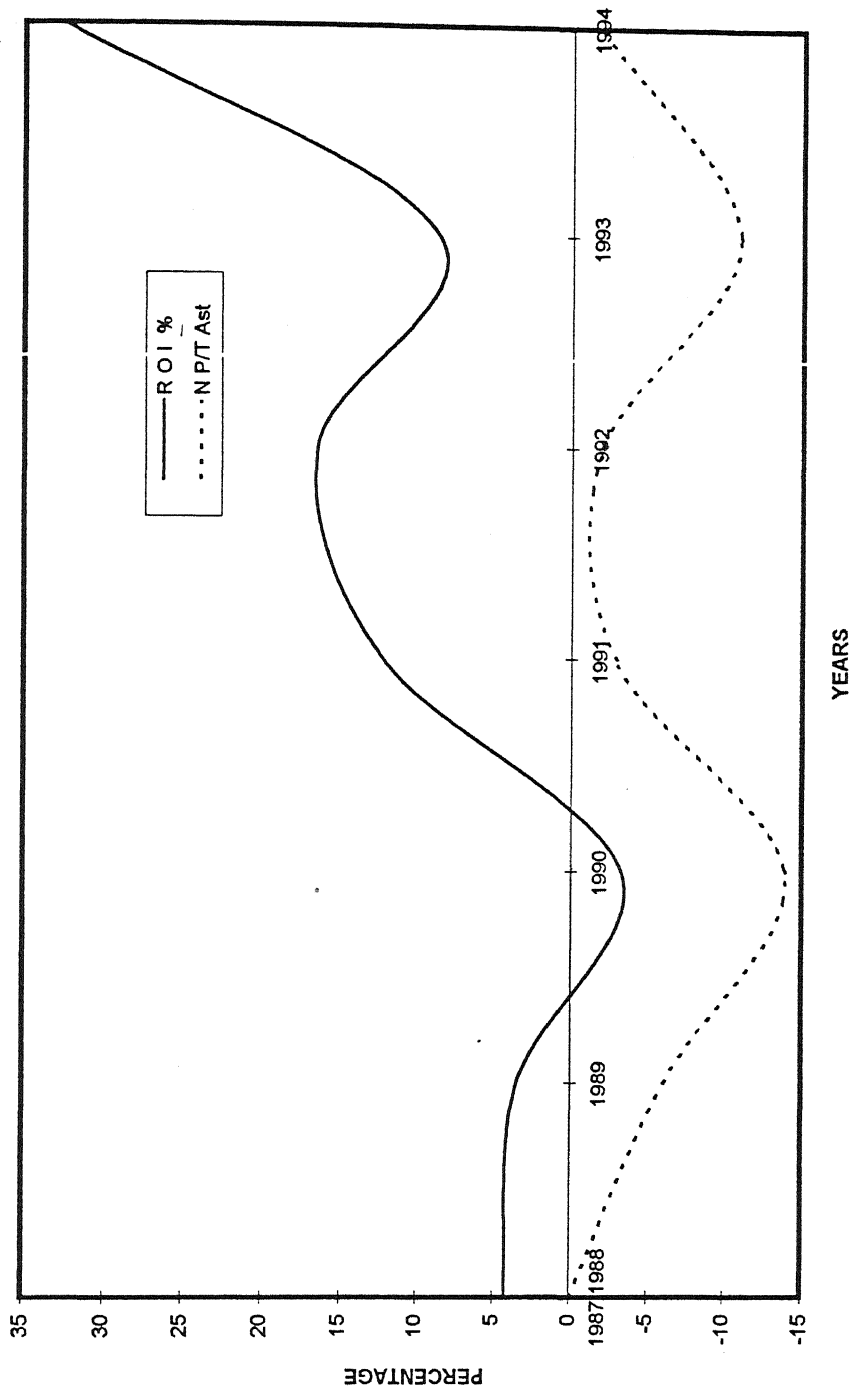
Verifies Proposition No:3

BIRLA-YAMAHA

YEARS	RUPEES	SALES	Mfg Eqpt/Yr
1987/1988	215381	216850	
1989	236710	341242	21329
1990	242266	278907	5556
1991	262113	322002	19847
1992	305038	350540	42925
1993	317705	306375	12667
1994	328073	406678	10368

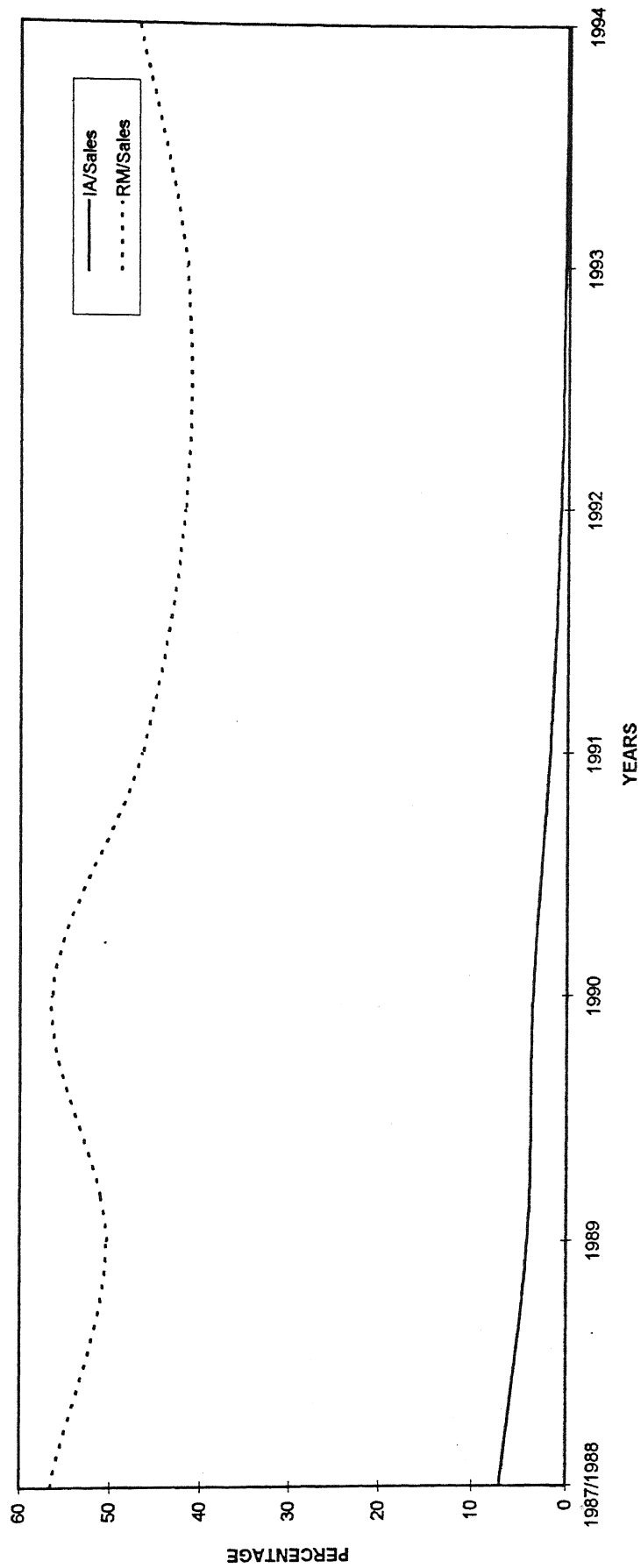


YEARS	ROI %	N P/T Ast
1987/1988	4.27	0
1989	3.49	-6
1990	-3.29	-14
1991	12.28	-3
1992	16.47	-2
1993	8.59	-11
1994	32.57	-2



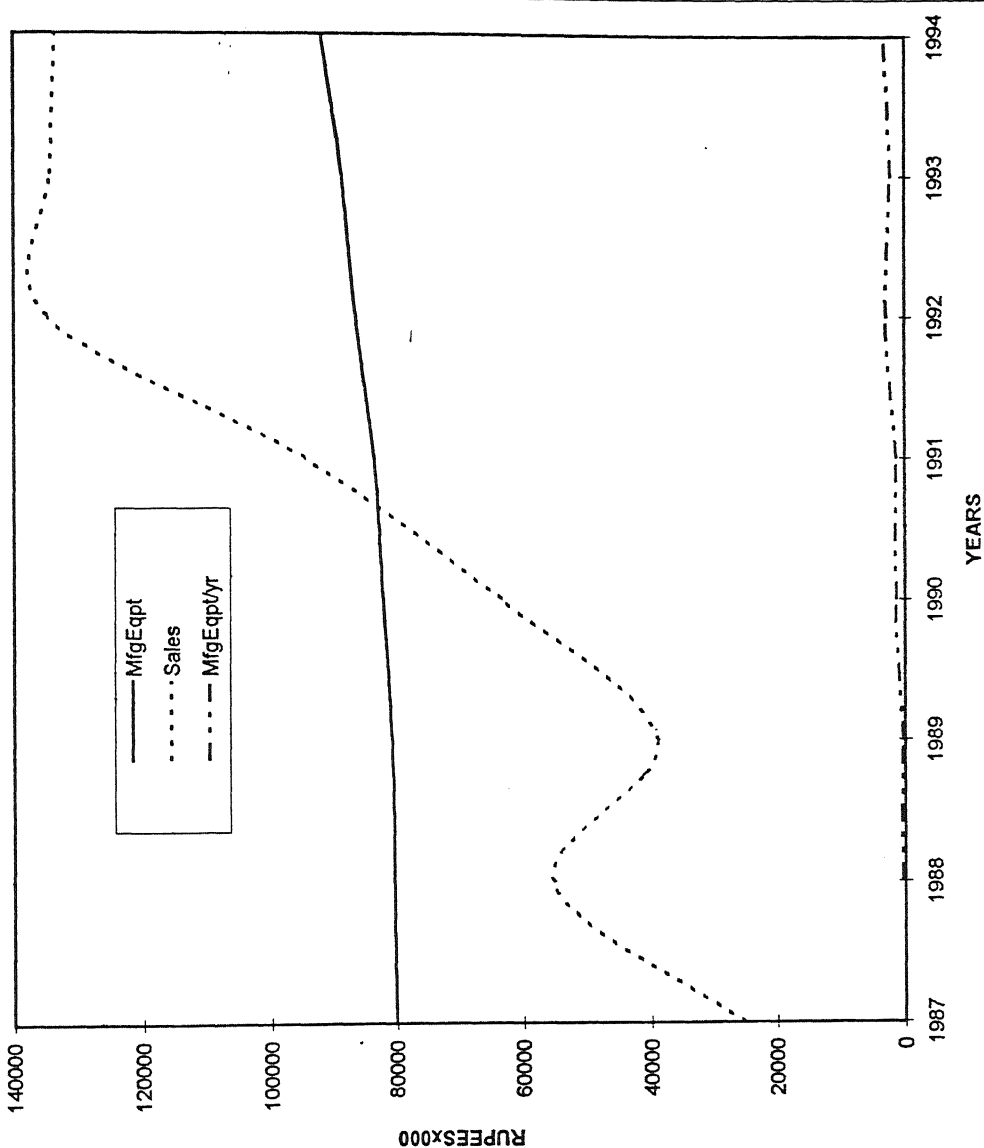
YEARS	SALES	Int Assets	Raw Mtrls	IA/Sales	RM/Sales
1987/1988	216850	15290	122704	7.050957	56.58474
1989	341242	14188	171788	4.157753	50.34199
1990	278907	10112	157067	3.625581	56.31519
1991	322002	6036	149903	1.874523	46.55344
1992	350540	2977	146623	0.849261	41.82775
1993	306375	1295	127779	0.422685	41.70673
1994	406678	986	190713	0.242452	46.89533

BIRLA YAMAHA

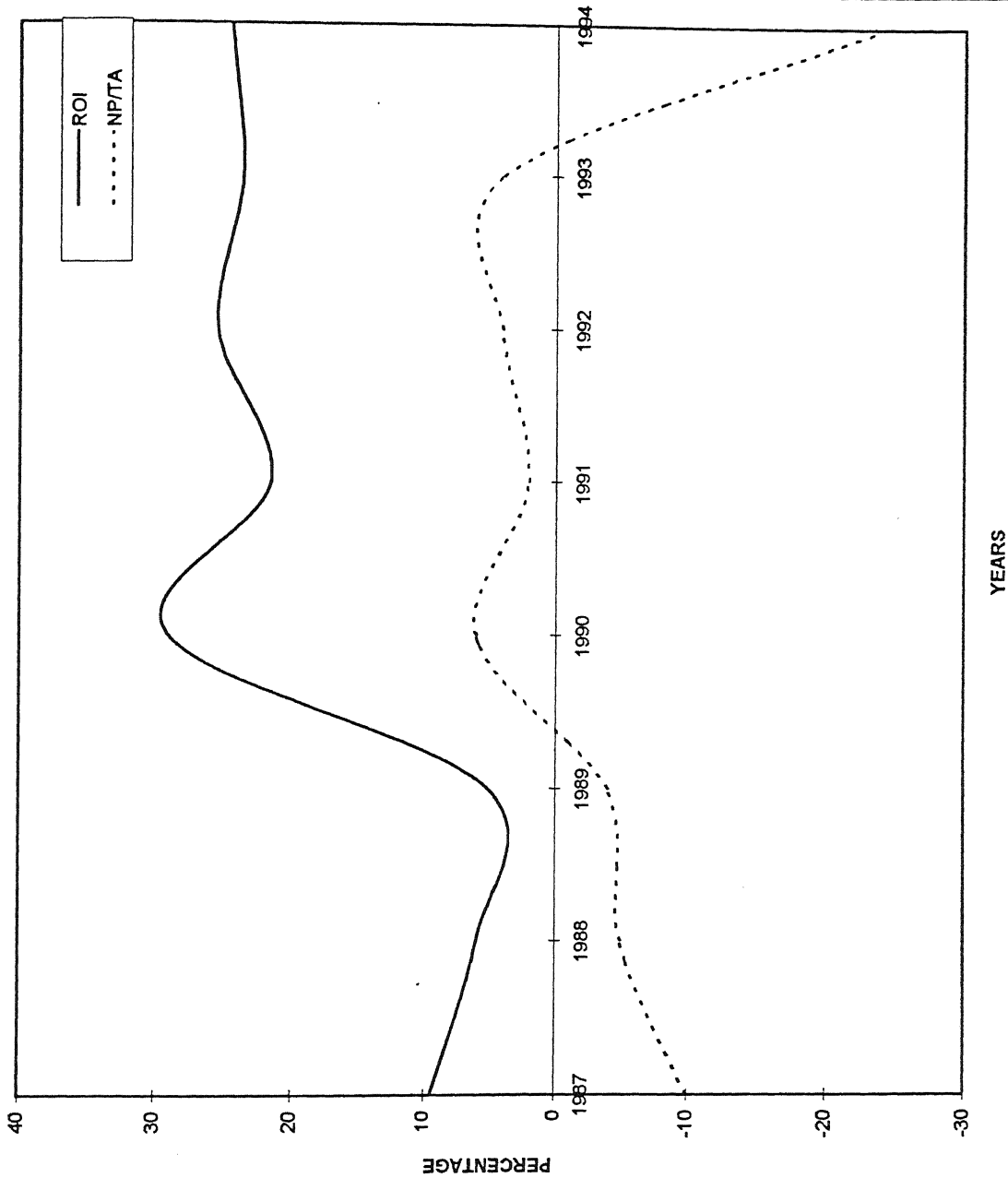


Years	MfgEqpt	Sales	MfgEqpt/yr
1987	80102	25021	
1988	80509	55329	407
1989	80843	39108	334
1990	82194	63288	1351
1991	83599	94497	1405
1992	86503	134688	2904
1993	88741	134325	2238
1994	91918	133306	3177

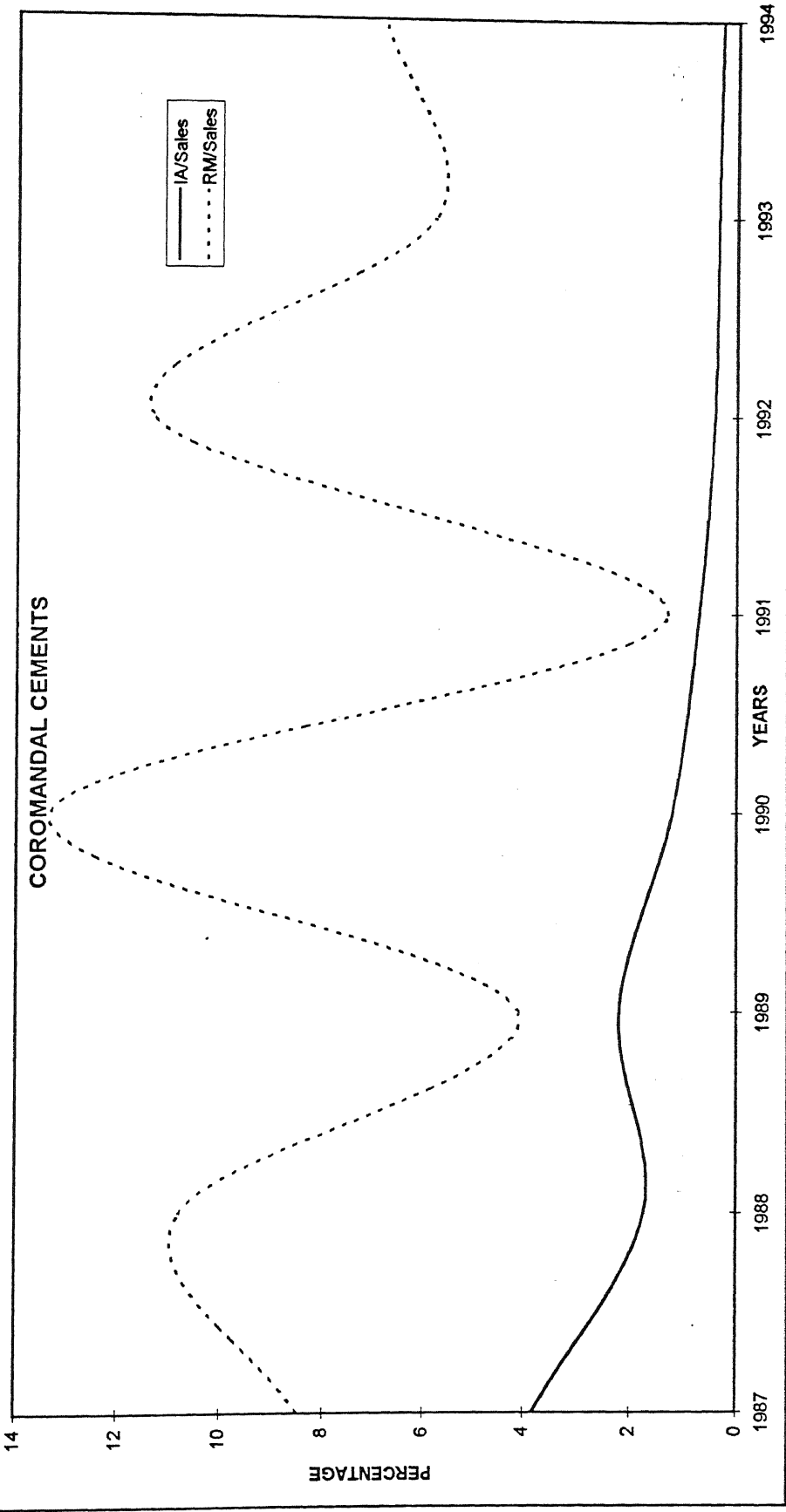
COROMANDEL CEMENTS



Years	ROI	NP/TA
1987	9.47	-10
1988	6.01	-5
1989	5.12	-4
1990	29.06	6
1991	21.57	2
1992	25.42	4
1993	23.63	4
1994	24.46	-24



Years	Sales	Int Assets	Raw Mtrls	IA/Sales	RM/Sales
1987	25021	958	2118	3.828784	8.464889
1988	55329	958	5970	1.731461	10.79
1989	39108	862	1603	2.204153	4.098906
1990	63288	766	8433	1.21034	13.3248
1991	94497	671	1228	0.710075	1.299512
1992	134688	575	15245	0.426913	11.31875
1993	134325	479	7798	0.356598	5.805323
1994	133306	383	9124	0.287309	6.844403



COMPANY NAME: COROMANDAL CEMENTS

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	Substantially high	
2.	MARKETING EXPENDITURE (% of Sales)	NA	
3.	COST OF RAW MATERIALS (% of Sales)	2 to 13%	
4.	MARKET SHARES	0.1%	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0.3 to 4%	
6.	COMPETITORS	1.ACC (14%) 2.CCI (5%) 3.Birla (5%) 4.India Cements (4.3%)	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	320% initially ;got down to 65%	
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	Average 50%	
9.	ROI PERFORMANCE	5 to 24%	
10.	NET PROFIT/TOTAL ASSETS	-5 to 24%	Poor
11.	CAPACITY UTILIZATION	Licensed 66,000 T Installed 66,000 T Actual 55,000 to 93,000T	Almost full capacity utilization

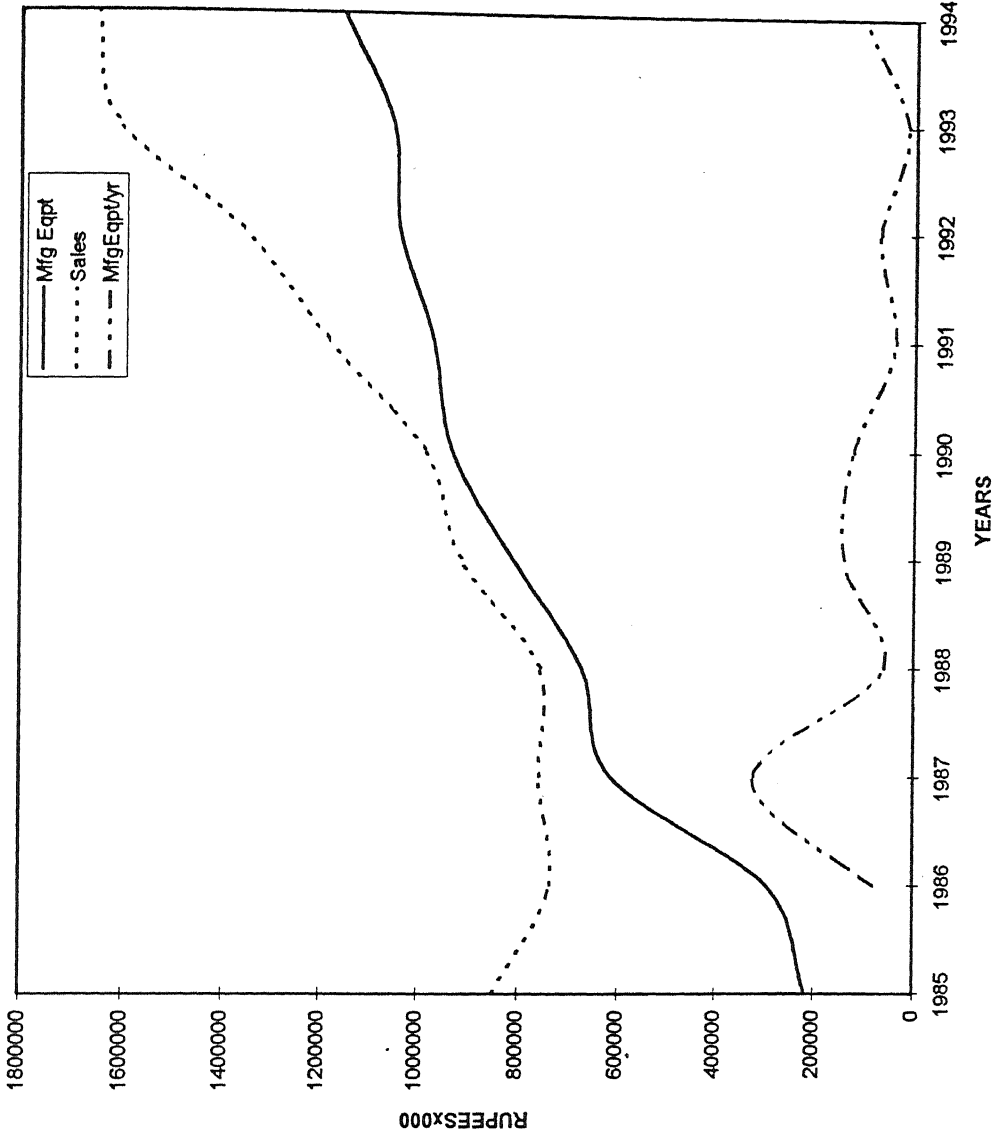
JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Competition is severe .
2. Environment is turbulent due to many players and company having only 0.1% of market share.
3. Manufacturing strategy and also corporate strategy are incremental .

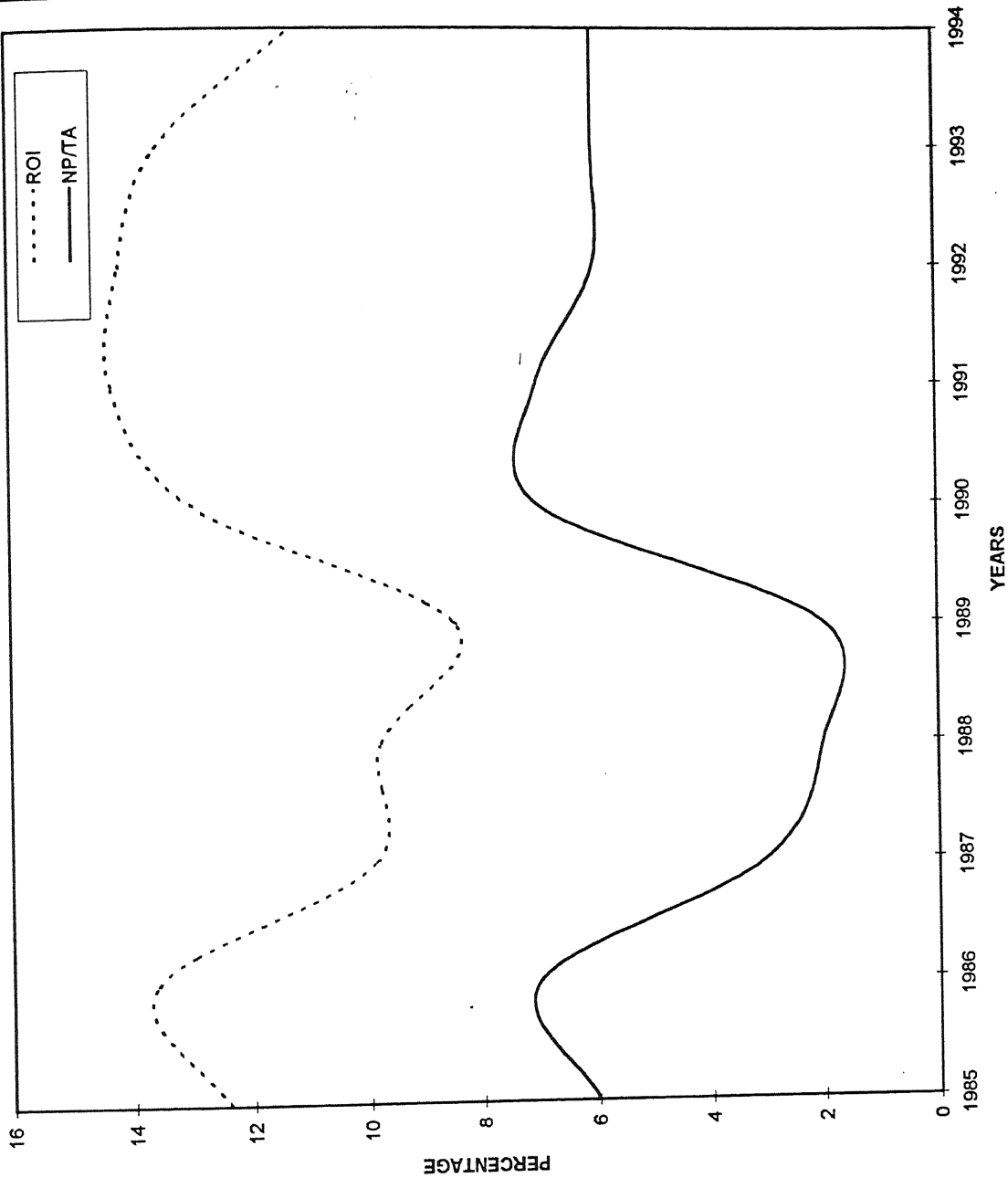
Verifies Proposition No:2 and 4(a).

Years	Mfg Eqpt	Sales	MfgEqpt/yr
1985	216335	849672	
1986	293640	733964	77305
1987	613926	756776	320286
1988	673741	755868	59815
1989	812960	913811	139219
1990	935553	984986	122593
1991	972658	1182439	37105
1992	1041953	1358231	69295
1993	1055692	1610628	13739
1994	1157685	1645266	101993

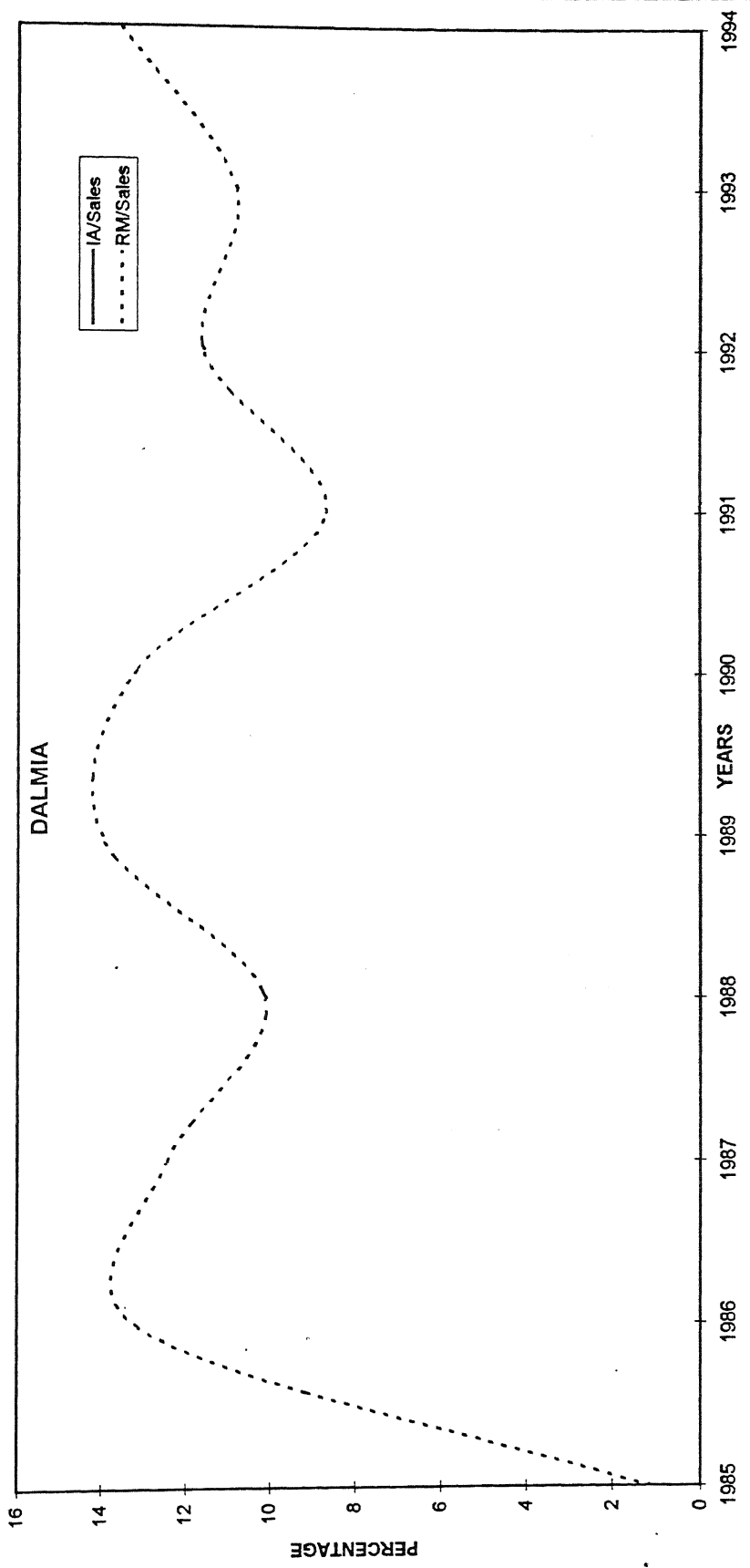
DALMIA CEMENTS

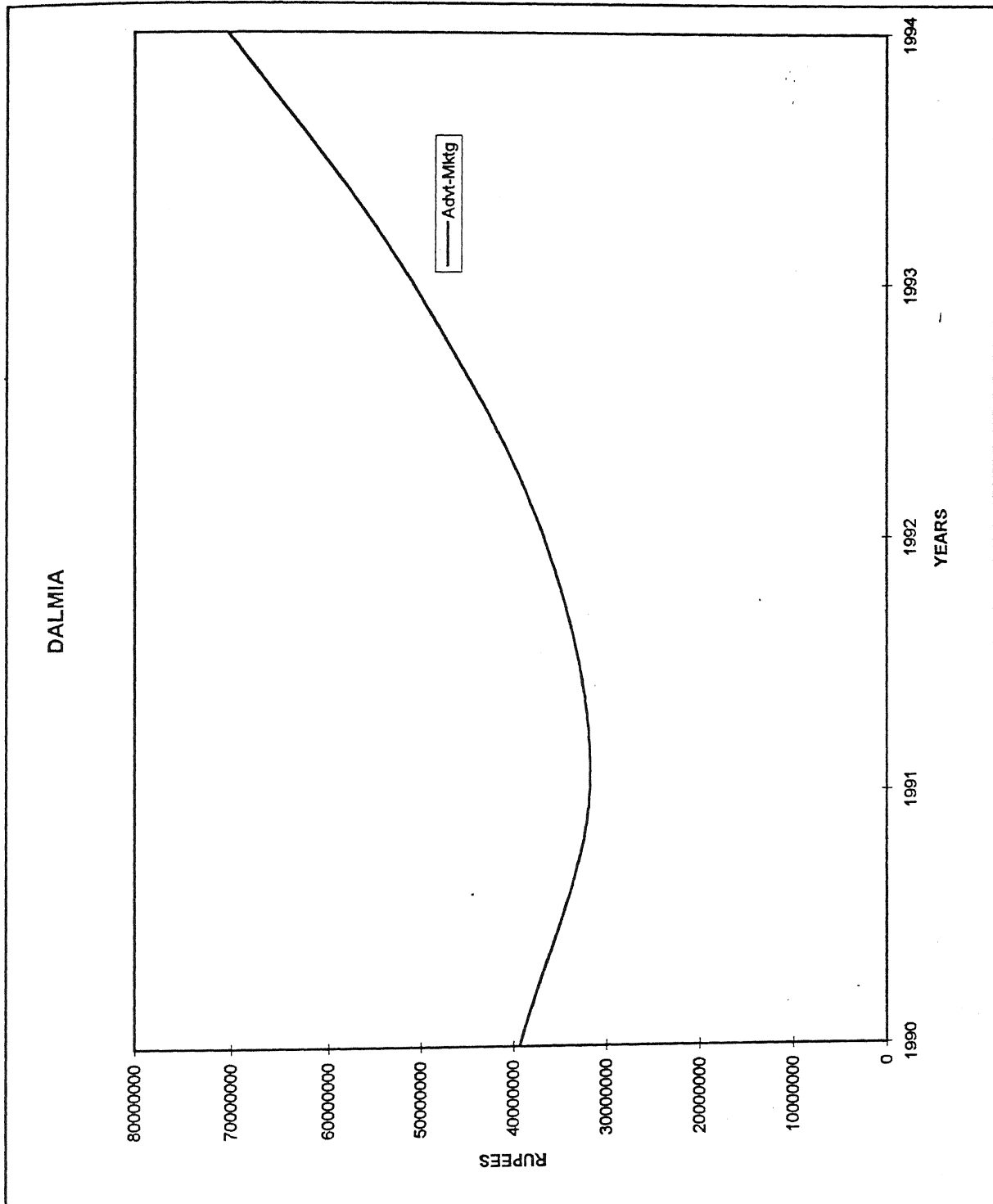


Years	ROI	NP/TA
1985	12.39	6
1986	13.63	7
1987	9.9	3
1988	9.8	2
1989	8.42	2
1990	12.95	7
1991	14.3	7
1992	14.17	6
1993	13.55	6
1994	11.23	6



Years	Sales	Int Assets	Raw Mtrls	IA/Sales	RM/Sales
1985	849672	0	9031	0	1.062881
1986	733964	0	96228	0	13.11072
1987	756776	0	94137	0	12.43922
1988	755868	0	76373	0	10.10401
1989	913811	0	127677	0	13.97193
1990	984986	0	130485	0	13.2474
1991	1182439	0	103339	0	8.739478
1992	1358231	0	157552	0	11.59979
1993	1610628	0	174373	0	10.8264
1994	1645266	0	222671	0	13.53404



[illegible]

COMPANY NAME: DALMIA

PRODUCT : CEMENTS

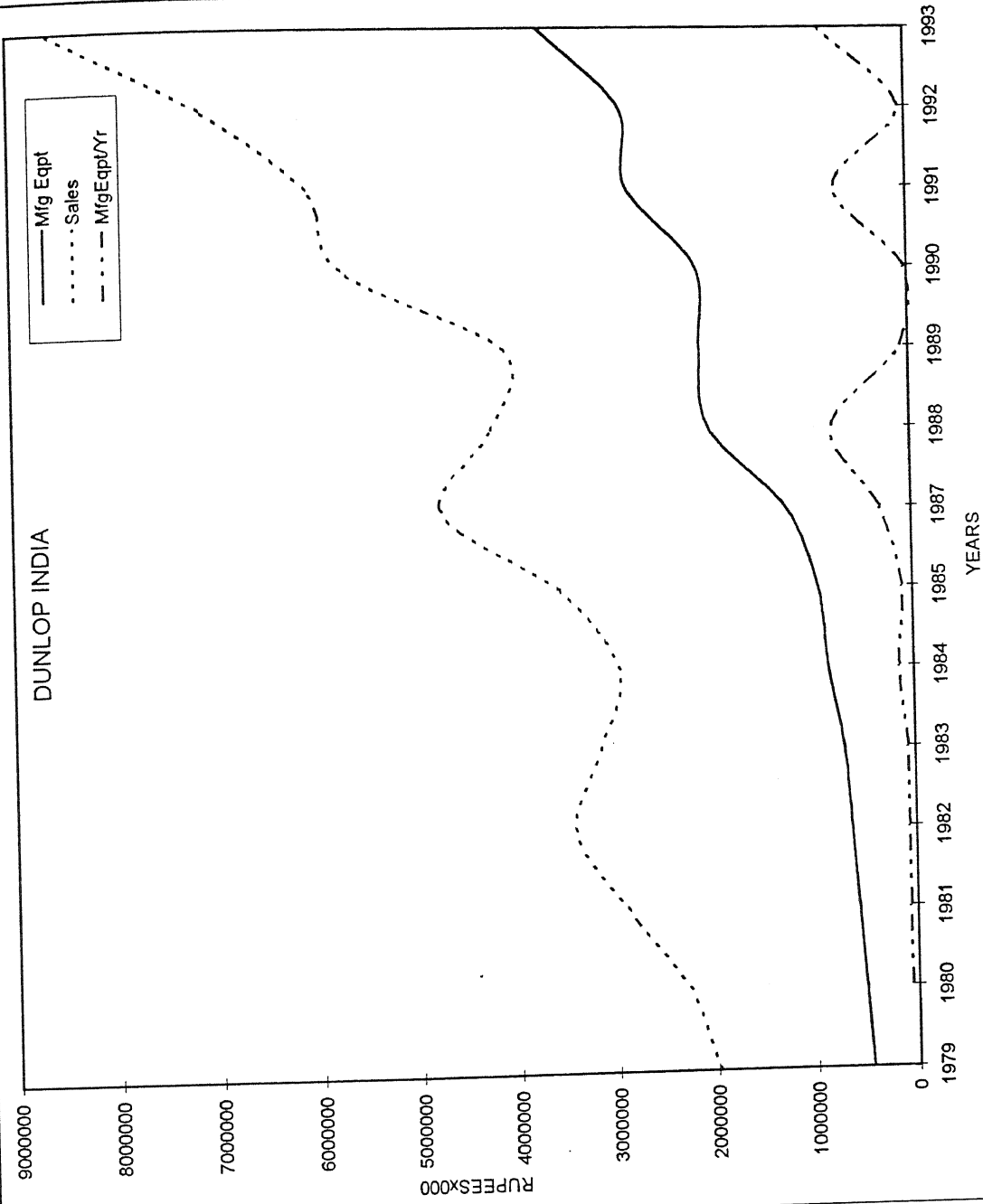
S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	High--21; 20; 18% Low--8; 3; 2%	Sales goes up substantially
2.	MARKETING EXPENDITURE (% of Sales)	3 to 4%	
3.	COST OF RAW MATERIALS (% of Sales)	10 to 13%	
4.	MARKET SHARES	1.3%	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0%	
6.	COMPETITORS	1.ACC (14%) 2.CCI (5%) 3.Birla (5%) 4.India Cements(4.3%)	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	25 to 95%	
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	50 to 89%	
9.	ROI PERFORMANCE	8 to 15%	
10.	NET PROFIT/TOTAL ASSETS	2 to 8%	
11.	CAPACITY UTILIZATION	Licensed 5,95,000 Installed 5,91,000 Actual 5,02,000	Good Utilization

JUDGEMENT ABOUT ITS ENVIRONMENT:

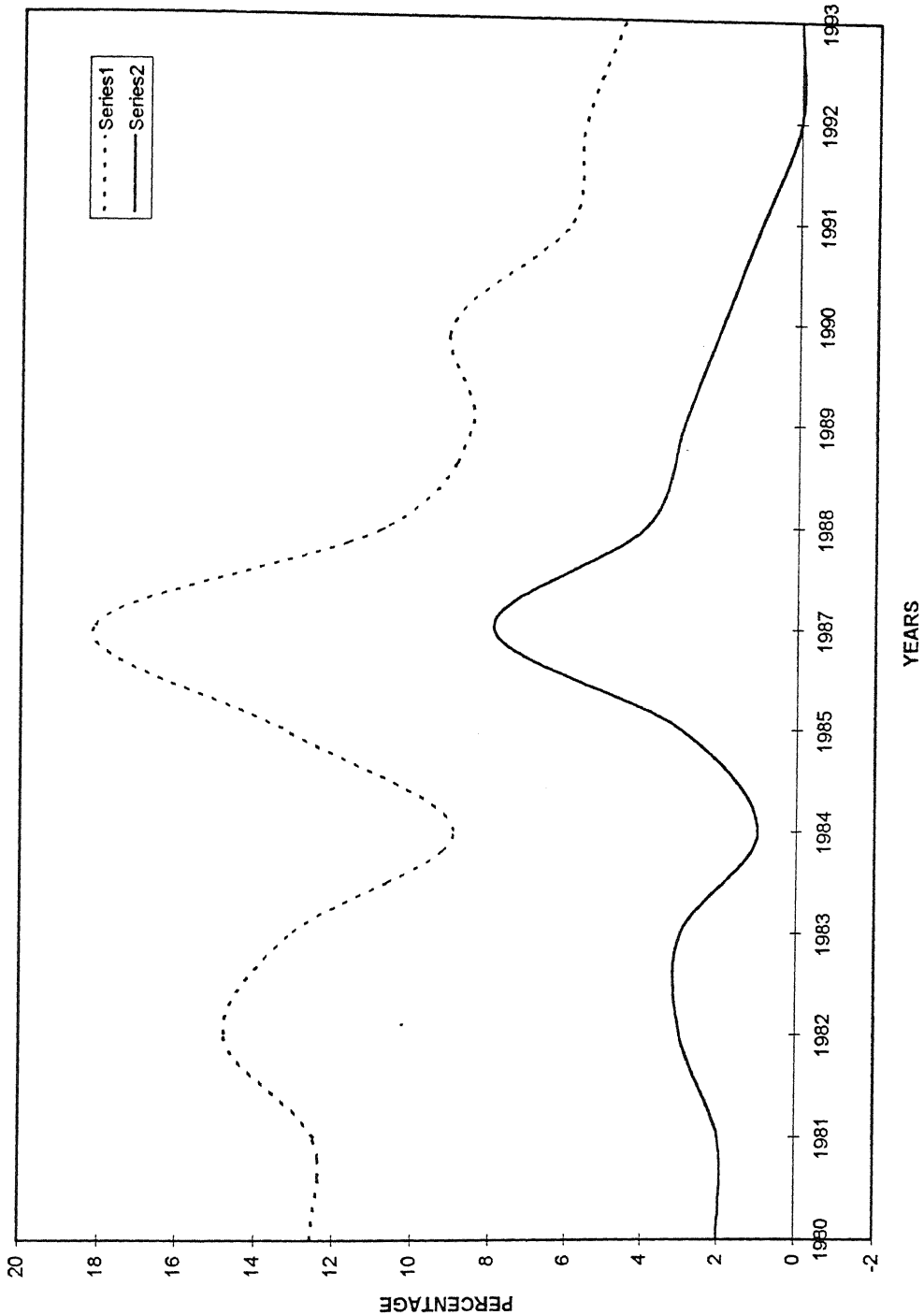
1. Competition is severe.
2. Environment is severe turbulent ;taken bold manufacturing approaches
3. Profitabilitywise doing well.
4. Stressed marketing function substantially.

Verifies Proposition No:5

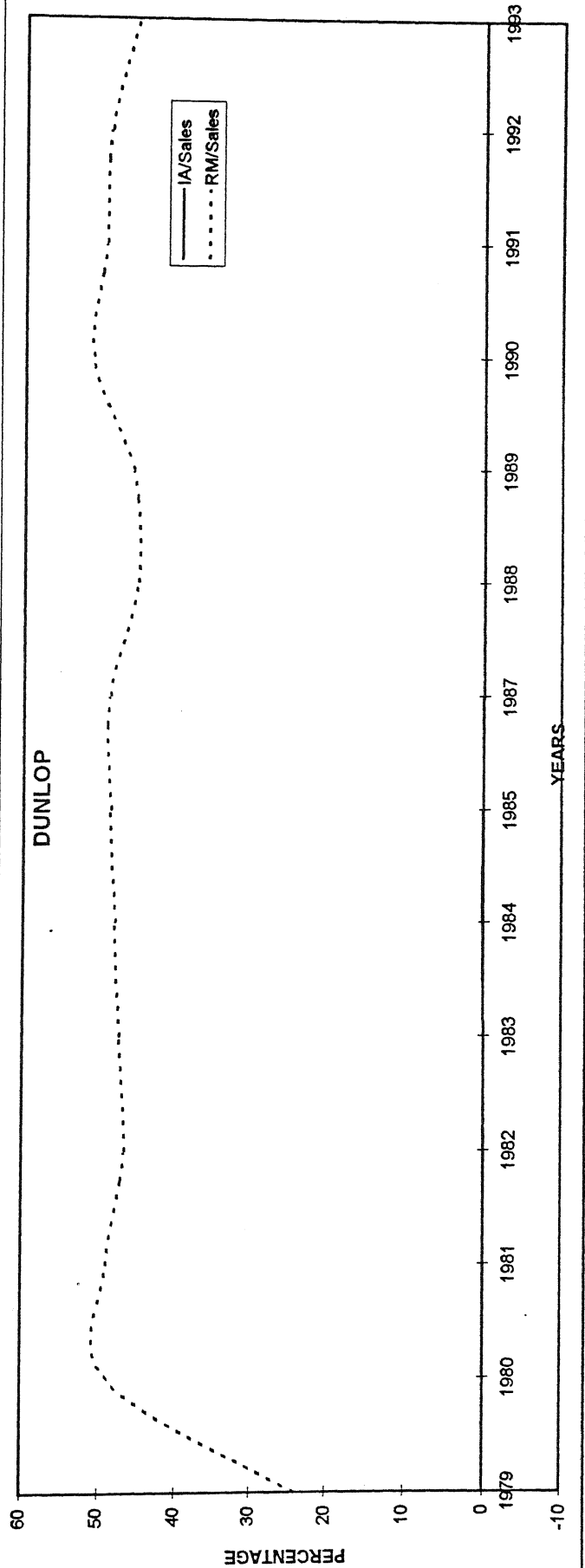
Years	Mfg Eqpt	Sales	MfgEqpt/Yr
1979	450202	1970155	
1980	510321	2257481	60119
1981	571407	2876069	61086
1982	635178	3411588	63771
1983	696810	3162581	61632
1984	836328	2950040	139518
1985	931042	3543786	94714
1987	1236000	4740100	304958
1988	2000600	4243000	764600
1989	2088200	4081500	87600
1990	2119500	5726900	31300
1991	2818900	6054200	699400
1992	2882600	7092200	63700
1993	3716700	8602000	834100

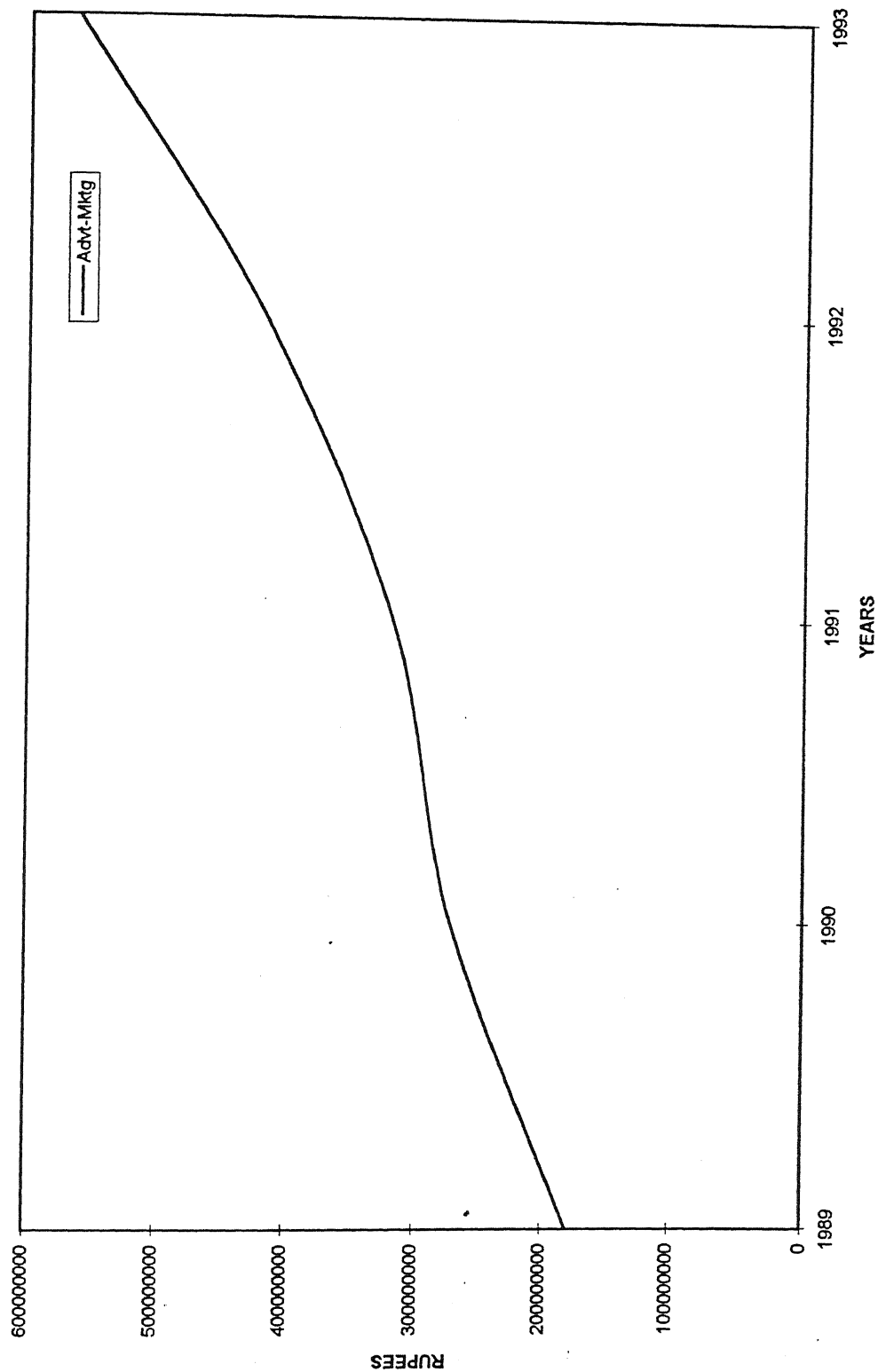


Years	ROI	NP/TA
1979	14.92	5
1980	12.54	2
1981	12.47	2
1982	14.79	3
1983	13.07	3
1984	8.96	1
1985	13.35	3
1987	18.15	8
1988	10.71	4
1989	8.55	3
1990	9.08	2
1991	6.03	1
1992	5.66	0
1993	4.62	0



Years	Sales	Int Assets	Raw Mtrrs	IA/Sales	RM/Sales
1979	1970155	0	471839	0	23.94933
1980	2257481	0	1098744	0	48.67124
1981	2876069	0	1407501	0	48.93836
1982	3411588	0	1593277	0	46.70192
1983	3162581	0	1500177	0	47.43521
1984	2950040	5204	1417724	0.176404	48.05779
1985	3543786	3295	1726693	0.09298	48.72453
1987	4740100	1400	2318100	0.029535	48.90403
1988	4243000	0	1923000	0	45.32171
1989	4081500	0	1877200	0	45.99289
1990	5726900	0	2936000	0	51.26683
1991	6054200	0	3003800	0	49.61514
1992	7092200	0	3481000	0	49.08209
1993	8602000	0	3921200	0	45.58475



[illegible]

COMPANY NAME: DUNLOP

PRODUCT :TYRES

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	20 % approx each year	
2.	MARKETING EXPENDITURE (% of Sales)	4.4 to 6 %	
3.	COST OF RAW MATERIALS (% of Sales)	mostly from 45 to 51 %	
4.	MARKET SHARES	8.1%	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0 to 0. 18%	
6.	COMPETITORS	1.MRF (17.5%) 2. CEAT (13.2%) 3.MODI (11.5%) 4. APPOLO (13%)	
7.	INVESTMENT IN PLANT & MACHINARY (% of Sales)	Initially 20%;later 45%	
8.	INVESTMENT IN PLANT & MACHINARY (% of Total Assets)	40 % initially 56% later.	
9.	ROI PERFORMANCE	5 to 18%	
10.	NET PROFIT/TOTAL ASSETS	0 to 8%	
11.	CAPACITY UTILIZATION	Licensed 3,500,000 Installed Actual 17,32,000	

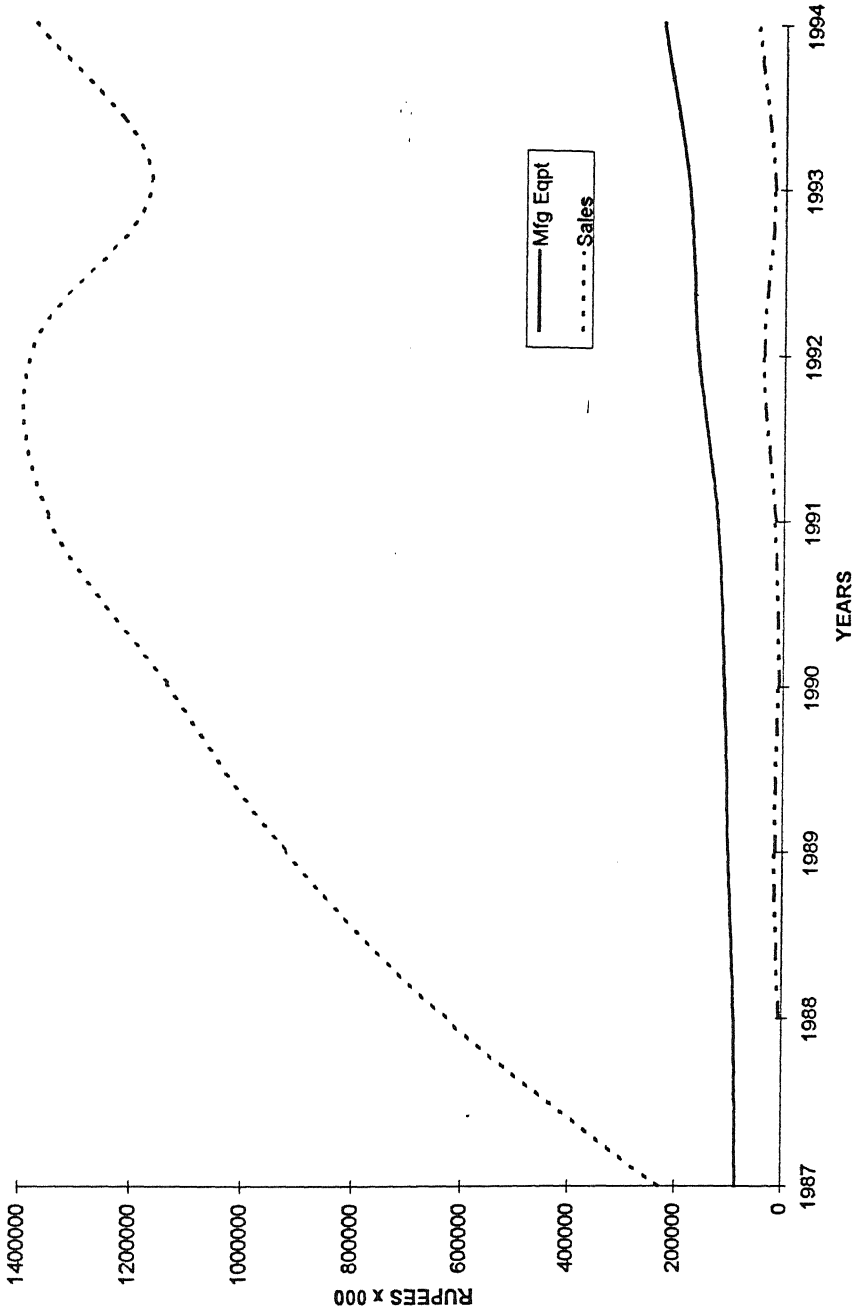
JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Competition is severe.
2. Investment in plant and machinery is 3 big investments.
3. Environment is turbulent .

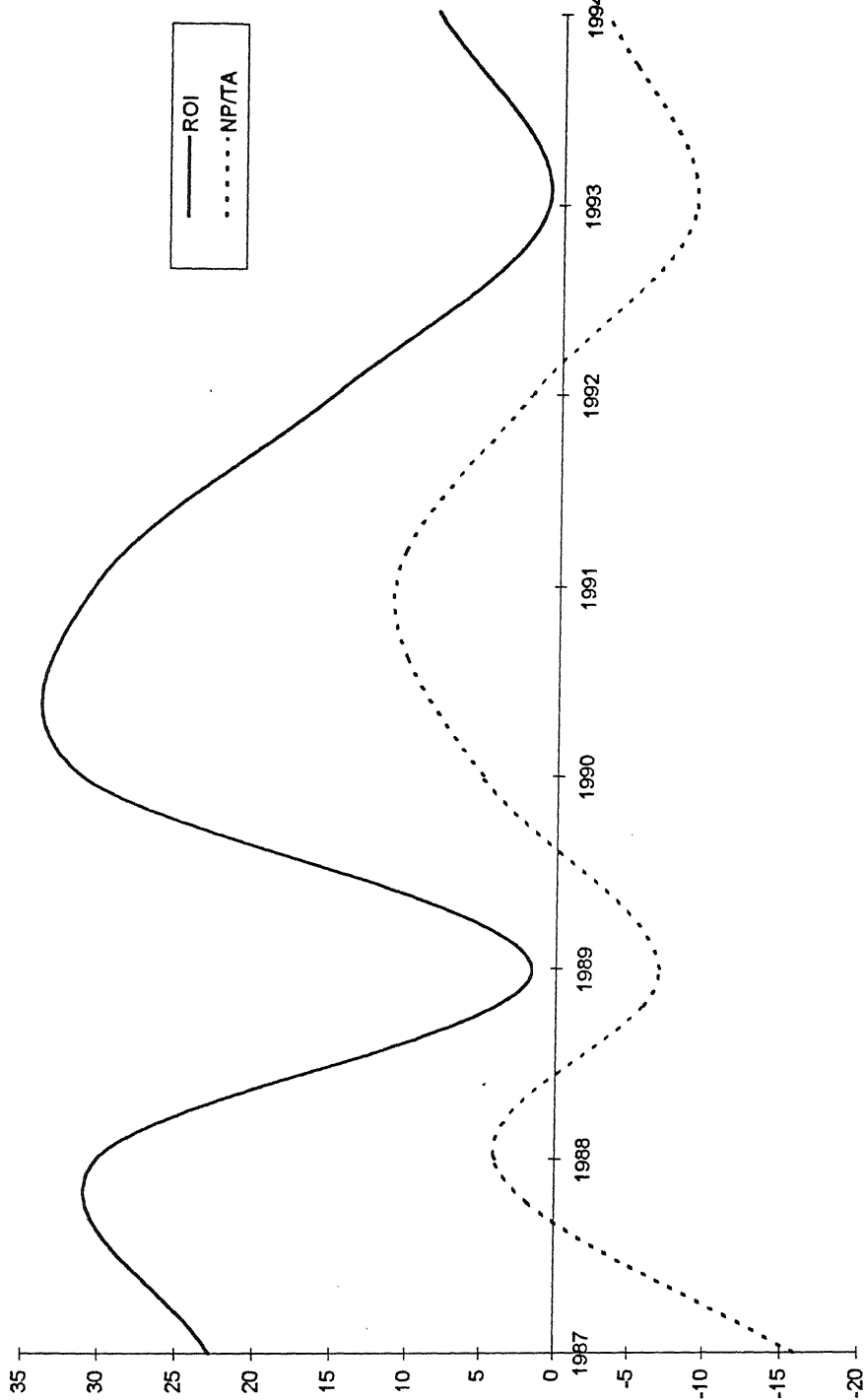
Verifies Proposition No:5

Years	Mfg Eqpt	Sales	Mfg Eqpt /Yr
1987	84405	227078	
1988	89266	624769	4861
1989	102304	921039	13038
1990	109591	1136027	7287
1991	123543	1349010	13952
1992	161571	1378856	38028
1993	179597	1166939	18026
1994	229767	1385928	50170

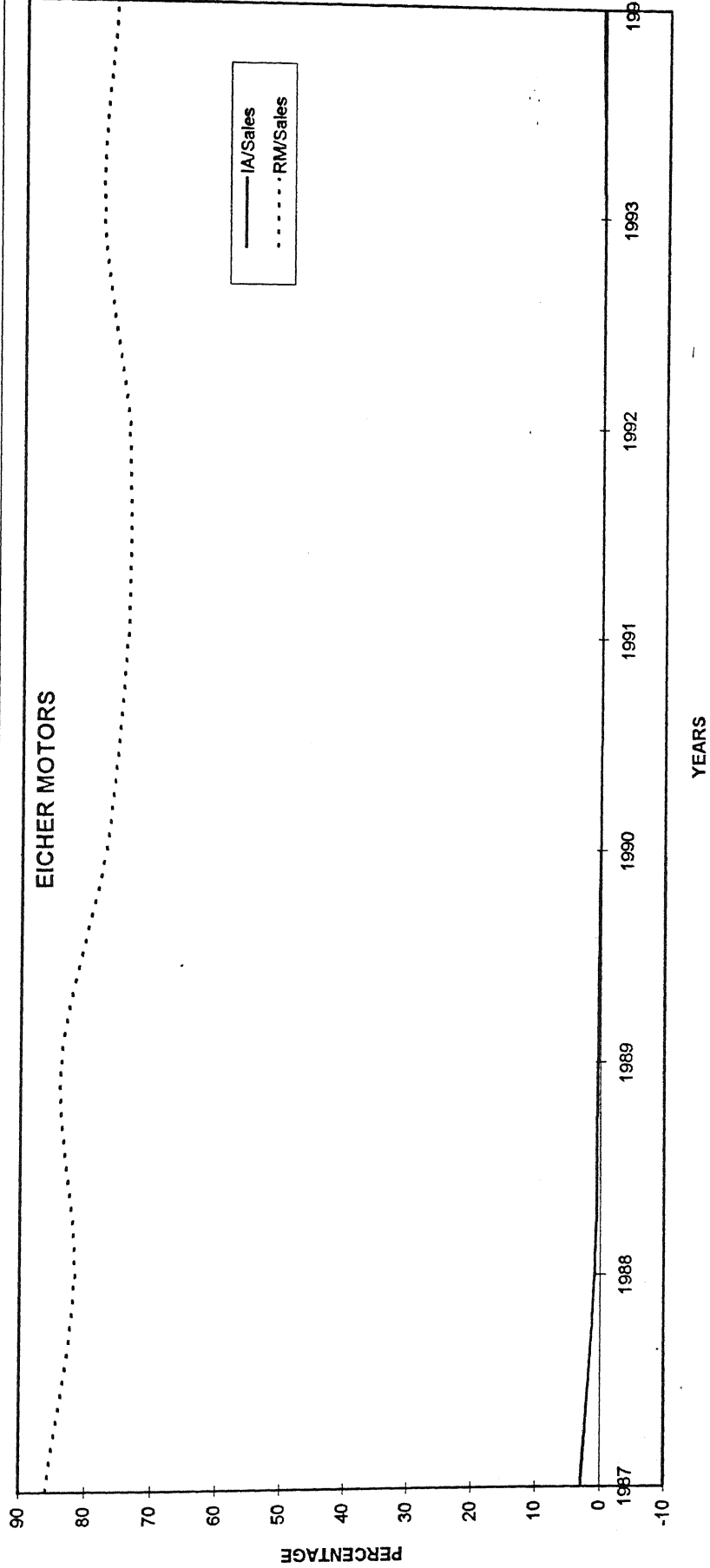
EICHER MOTORS



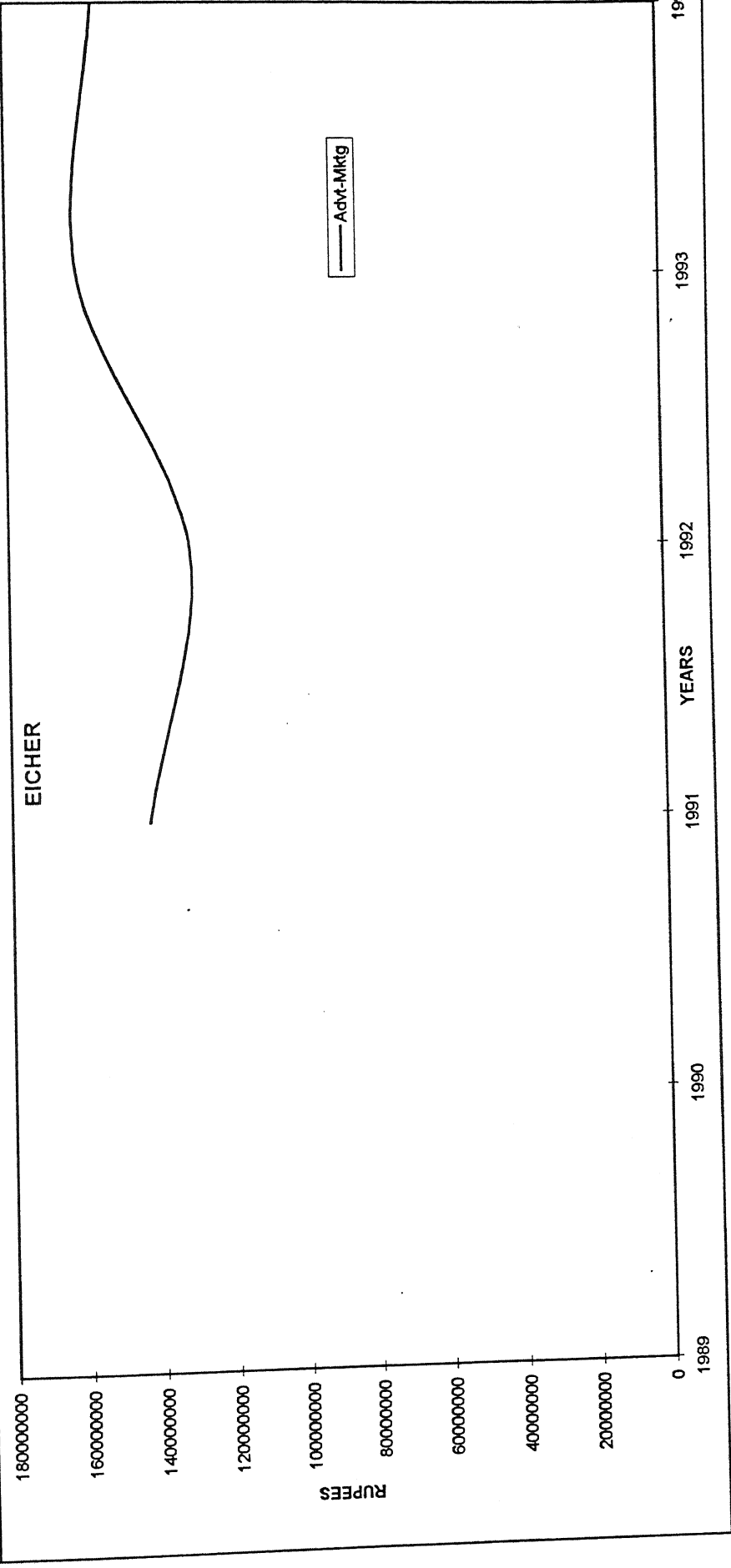
Years	ROI	NP/TA
1987	22.73	-16
1988	30.08	4
1989	1.63	-7
1990	31.49	5
1991	30.36	11
1992	14.91	2
1993	0.98	-9
1994	8.48	-3



Years	Sales	Int Assets	Raw Mtrls	IA/Sales	RM/Sales
1987	227078	6751	195326	2.972987	86.01714
1988	624769	5063	510142	0.81038	81.6529
1989	921039	3375	771673	0.366434	83.78288
1990	1136027	1688	878237	0.148588	77.30776
1991	1349010	0	1000944	0	74.19841
1992	1378856	0	1023245	0	74.20971
1993	1166939	0	912357	0	78.18378
1994	1385928	4768	1055975	0.344029	76.19263



Years	Advt-Mktg
1987	
1988	
1989	1.15E+08
1990	
1991	1.43E+08
1992	1.31E+08
1993	1.61E+08
1994	1.56E+08



COMPANY NAME: EICHER

PRODUCT : LCVs

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	20% rise.Once it falls downby 20% & later regains.	
2.	MARKETING EXPENDITURE (% of Sales)	Approx 10%.Absolute value 16 crores.	
3.	COST OF RAW MATERIALS (% of Sales)	74 to 86 %.	
4.	MARKET SHARES	6.6%.	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0 to 3 %.	
6.	COMPETITORS	1. Bajaj Tempo (22%) 2. Swaraj Mazda (5.5%) 3. DCM Daewoo (4.9%) 4. TELCO (53%)	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	10 to 16 %.	
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	25 to 33 %.	
9.	ROI PERFORMANCE	Fluctuating	May be due to change in Govt Policy
10.	NET PROFIT/TOTAL ASSETS	Fluctuating	Invested heavily in '93 & '94; so NP/TA fell down.
11.	CAPACITY UTILIZATION	Licensed Installed Actual	

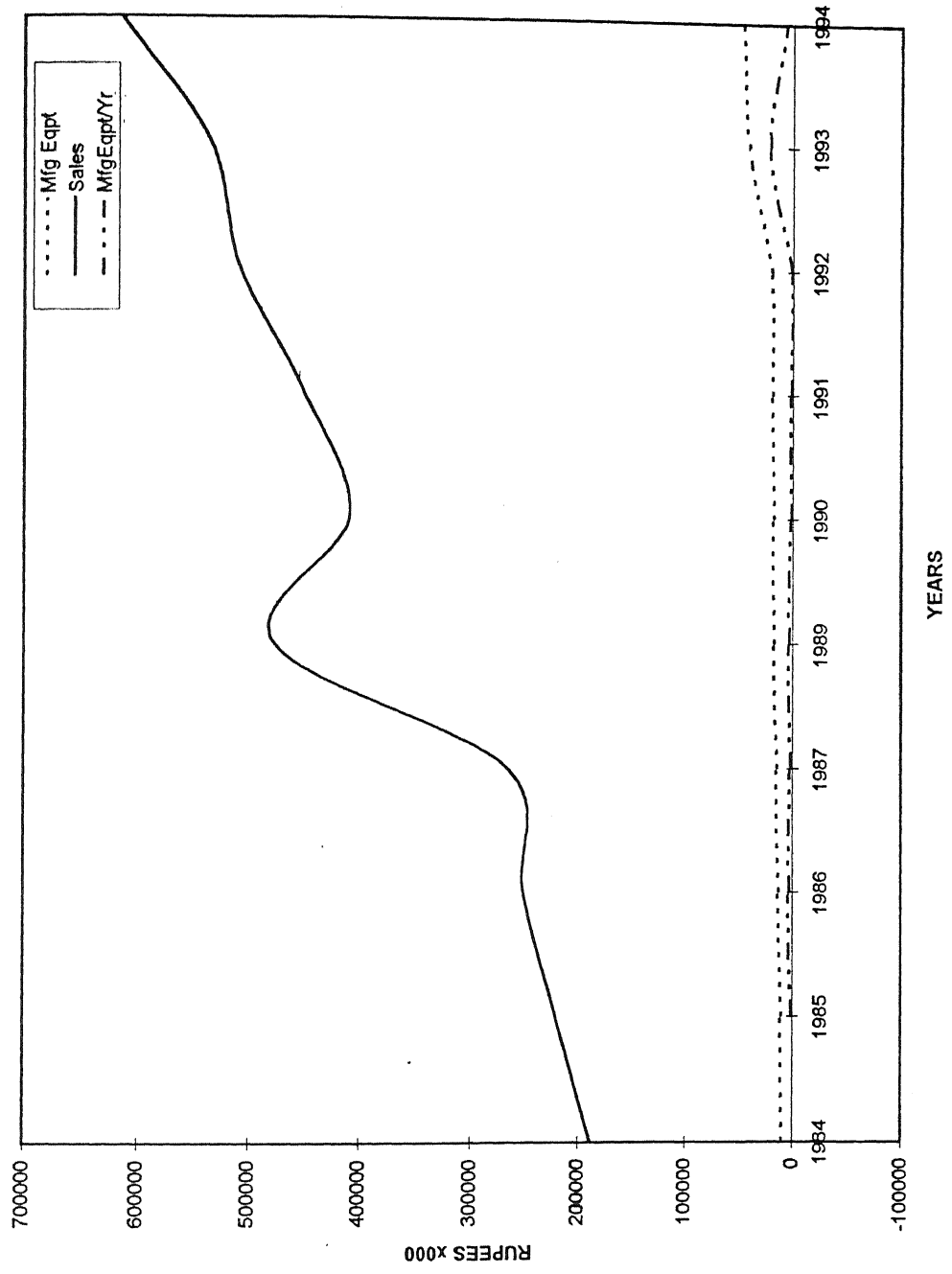
JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Competition is severe-- no. of competitors are many.
2. Environment is tough; turbulent since they are not market leaders.
3. Adopted an incremental approach to manufacturing strategy.

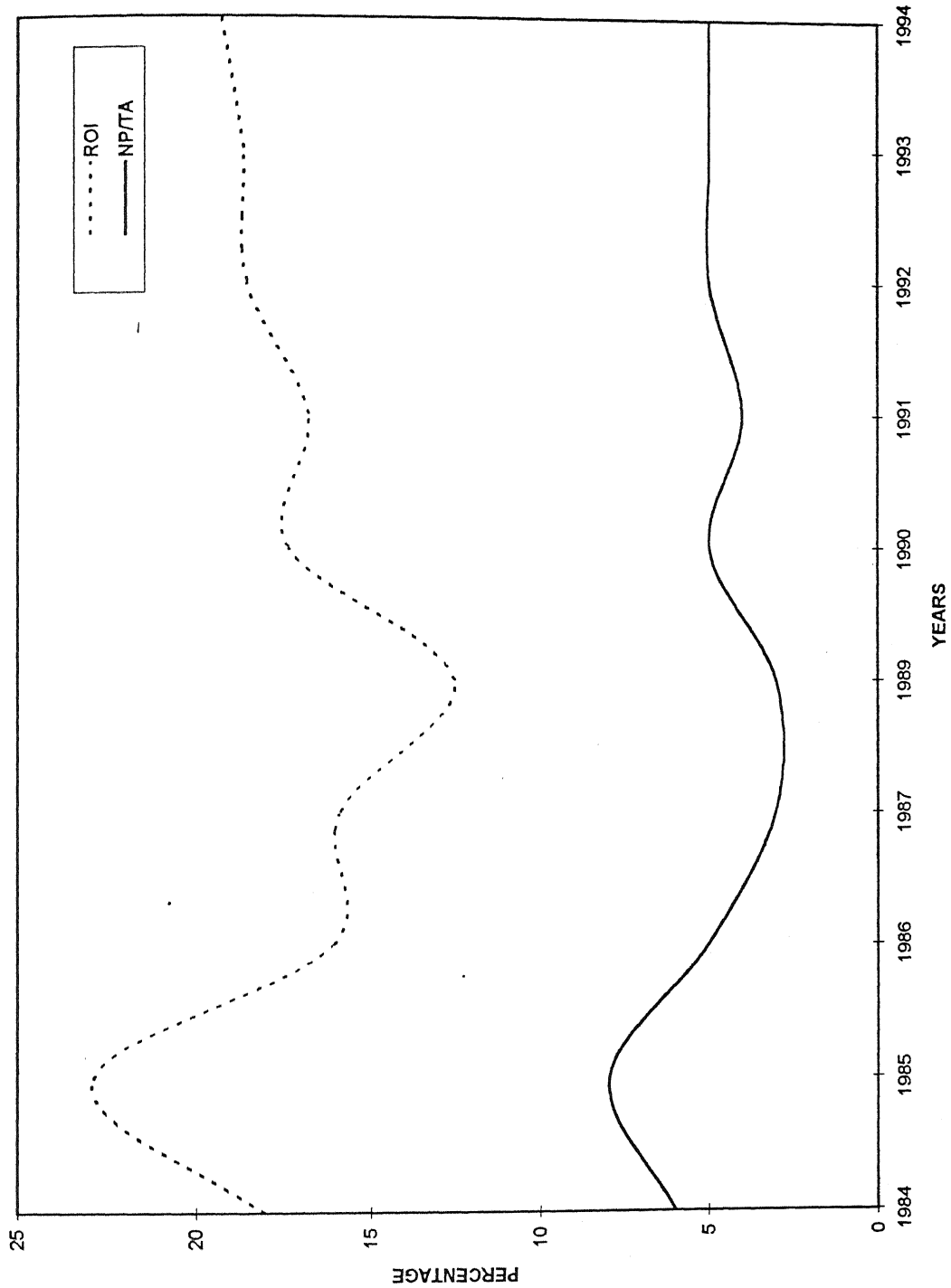
Verifies Proposition No:2 and 4(a).

Years	Mfg Eqpt	Sales	MfgEqpt/Yr
1984	9349	187993	
1985	10277	221243	928
1986	13041	252168	2764
1987	14446	267050	1405
1989	16971	478409	2525
1990	17758	409852	787
1991	18816	451087	1058
1992	19257	510009	441
1993	40443	536375	21186
1994	44958	615918	4515

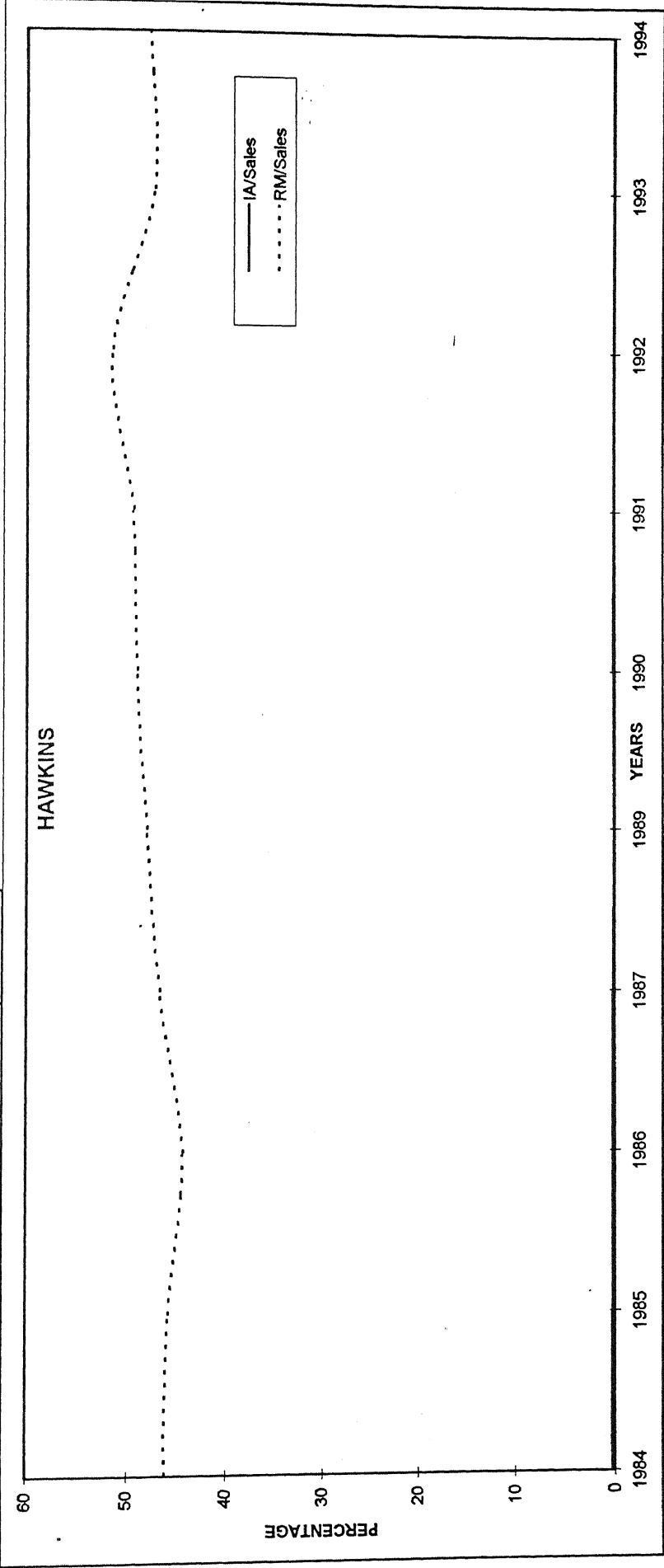
HAWKINS COOKERS



Years	ROI	NP/TA
1984	18.06	6
1985	22.87	8
1986	16.12	5
1987	15.92	3
1989	12.54	3
1990	17.38	5
1991	16.82	4
1992	18.57	5
1993	18.66	5
1994	19.26	5



Years	Sales	Int Assets	Raw Mtrls	IA/Sales	RM/Sales
1984	187993	547	86819	0.290968	46.18204
1985	221243	547	101232	0.247239	45.75602
1986	252168	547	111557	0.216919	44.23916
1987	267050	547	124473	0.204831	46.61037
1989	478409	547	229535	0.114337	47.97882
1990	409852	547	200705	0.133463	48.97012
1991	451087	547	222702	0.121263	49.37008
1992	510009	547	262365	0.107253	51.44321
1993	536375	547	253458	0.101981	47.25388
1994	615918	547	293082	0.088811	47.58458



COMPANY NAME: HAWKINS

PRODUCT : PRESSURE COOKERS

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	High--79% Low--12%	Average 12 %
2.	MARKETING EXPENDITURE (% of Sales)	N A	
3.	COST OF RAW MATERIALS (% of Sales)	46%	
4.	MARKET SHARES	N A	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0.3 to 0.0%	
6.	COMPETITORS	1.Prestige 2.Sathe	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	4 to 7%	
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	8 to 16 %	
9.	ROI PERFORMANCE	14 to 23%	
10.	NET PROFIT/TOTAL ASSETS	4 to 8 %	
11.	CAPACITY UTILIZATION	Licensed NA Installed 28 Lacs Actual 7 to 14 lacs	

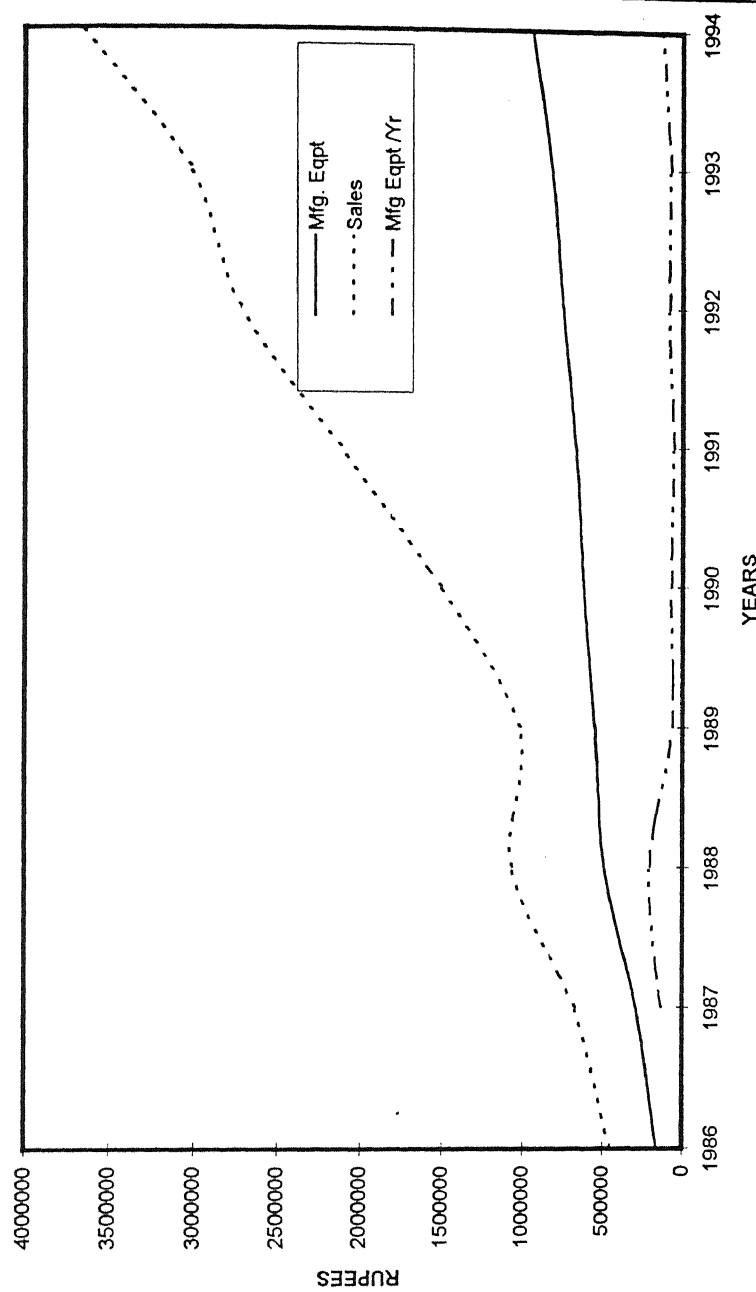
JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Competition is severe .
2. Environment is turbulent ; manufacturing strategy followed is incremental .

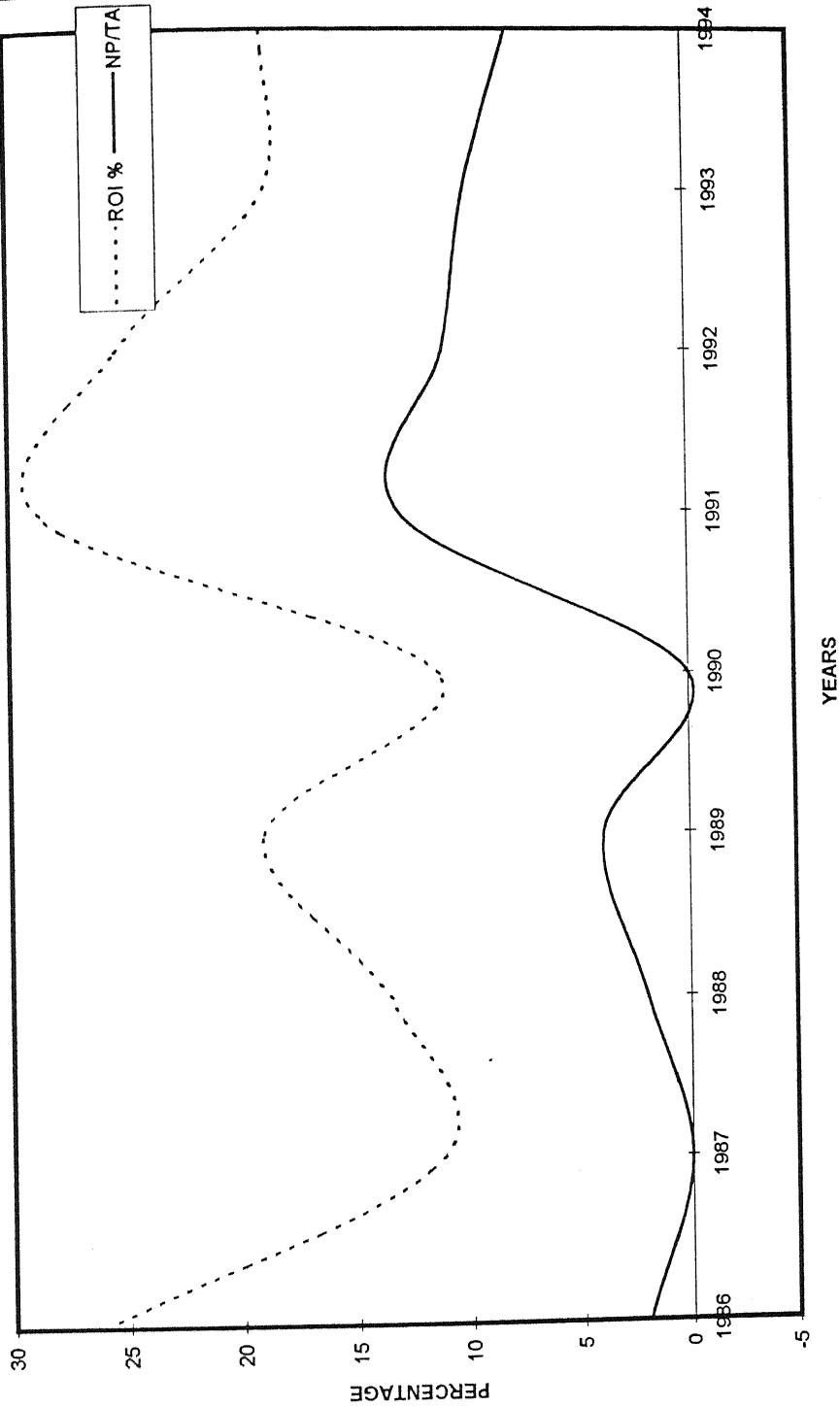
Verifies Proposition No:4(a), and negates 2.

YEARS	Mfg. Eqpt	Sales	Mfg Eqpt /Yr
1986	160299	450253	
1987	289466	669645	129167
1988	492180	1064302	202714
1989	553158	1016882	60978
1990	623565	1509721	70407
1991	675103	2118861	51538
1992	755130	2713751	80027
1993	825697	3014985	70567
1994	949216	3646460	123519

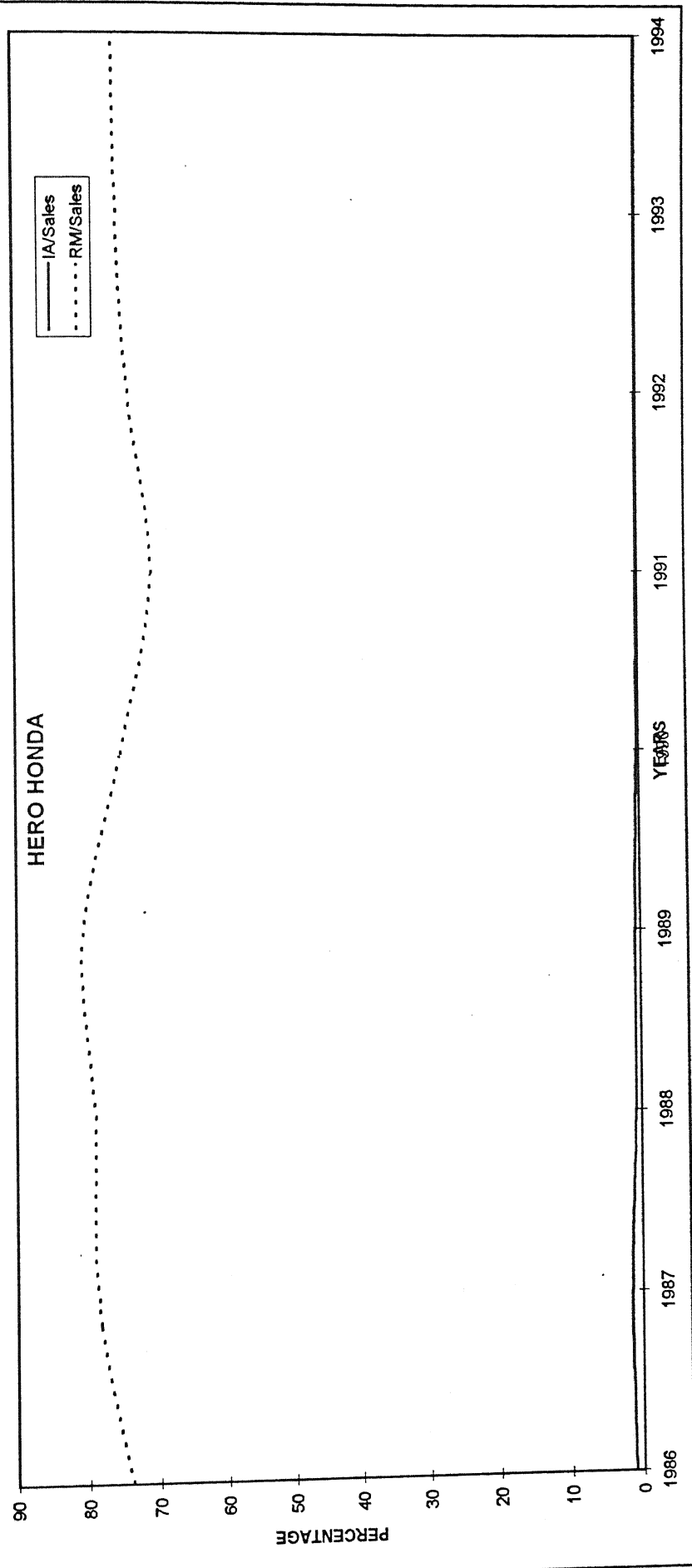
HERO HONDA



YEARS	ROI %	NP/TA
1986	26.24	2
1987	11.31	0
1988	13.47	2
1989	18.97	4
1990	11.2	0
1991	28.57	13
1992	25.3	11
1993	18.74	10
1994	18.71	8



YEARS	Sales	Int Assets	Raw Mtrls	IA/Sales	RM/Sales
1986	450253	5080	332478	1.128255	73.84248
1987	669645	9835	525563	1.468689	78.48382
1988	1064302	8603	839760	0.808323	78.90242
1989	1016882	7269	819501	0.714832	80.58959
1990	1509721	5935	1136561	0.393119	75.28285
1991	2118861	4820	1498968	0.227481	70.74405
1992	2713751	3705	2004483	0.136527	73.86392
1993	3014985	2589	2271748	0.085871	75.34857
1994	3646460	1474	2758951	0.040423	75.66108



COMPANY NAME: HERO HONDA

PRODUCT : TWO WHEELERS

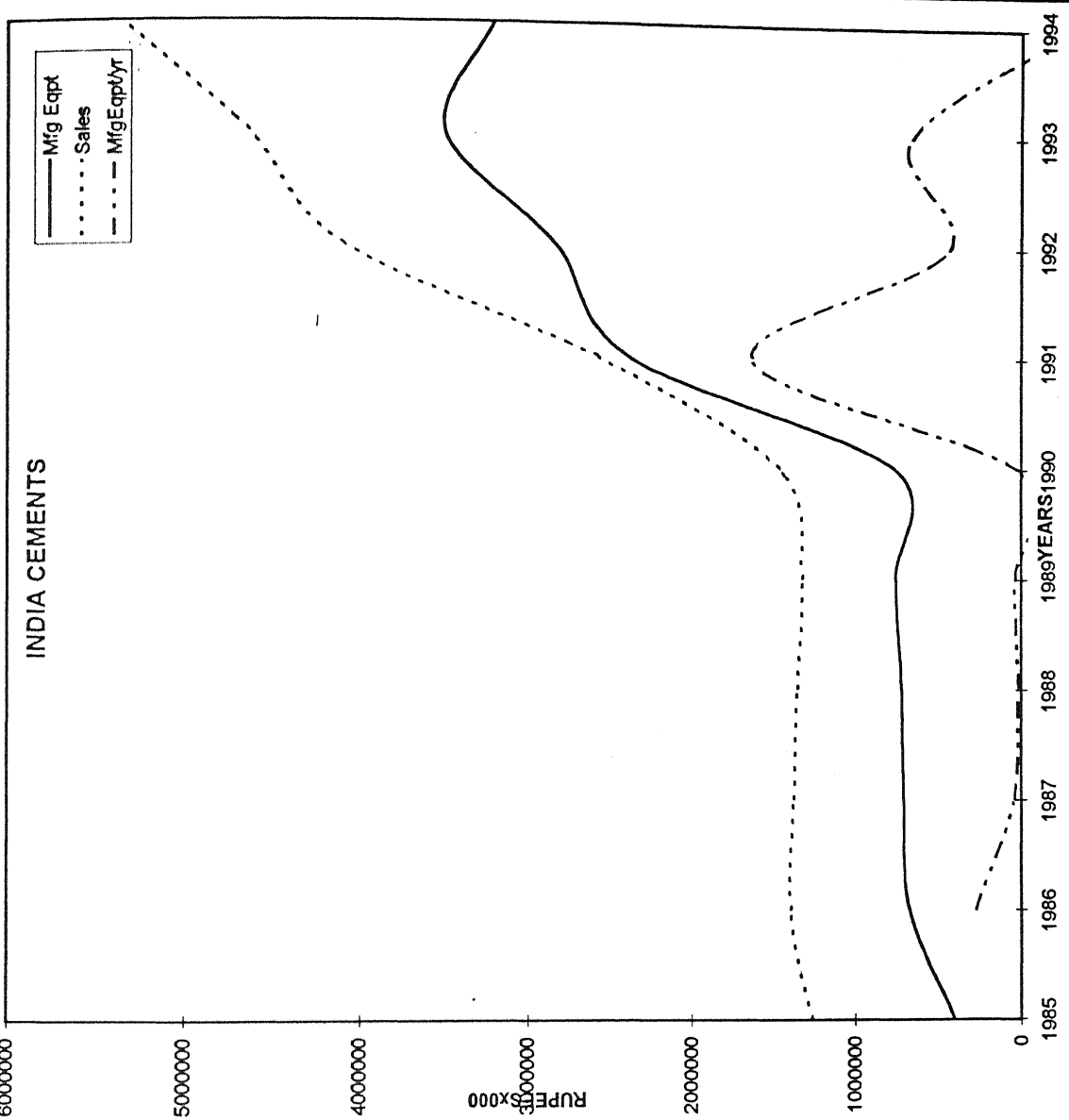
S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	On the rise; 50% on average	
2.	MARKETING EXPENDITURE (% of Sales)	3%	
3.	COST OF RAW MATERIALS (% of Sales)	70 to 81 %	High compared to other leaders. Suppliers may have control over the firm.
4.	MARKET SHARES	31 %	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0 to 1.5 %	
6.	COMPETITORS	1.TVS Suzuki (10.9%) 2.Escorts(26.8%) 3.Bajaj(26.6%)	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	26 to 54 %	
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	23 to 58%	
9.	ROI PERFORMANCE	10 to 30 %	
10.	NET PROFIT/TOTAL ASSETS	0 to 13	
11.	CAPACITY UTILIZATION	Licensed 2,00,000 Installed 1,50,000 Actual 1,47,000	

JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Environment is stable.
2. Every year they kept on investing in manufacturing .

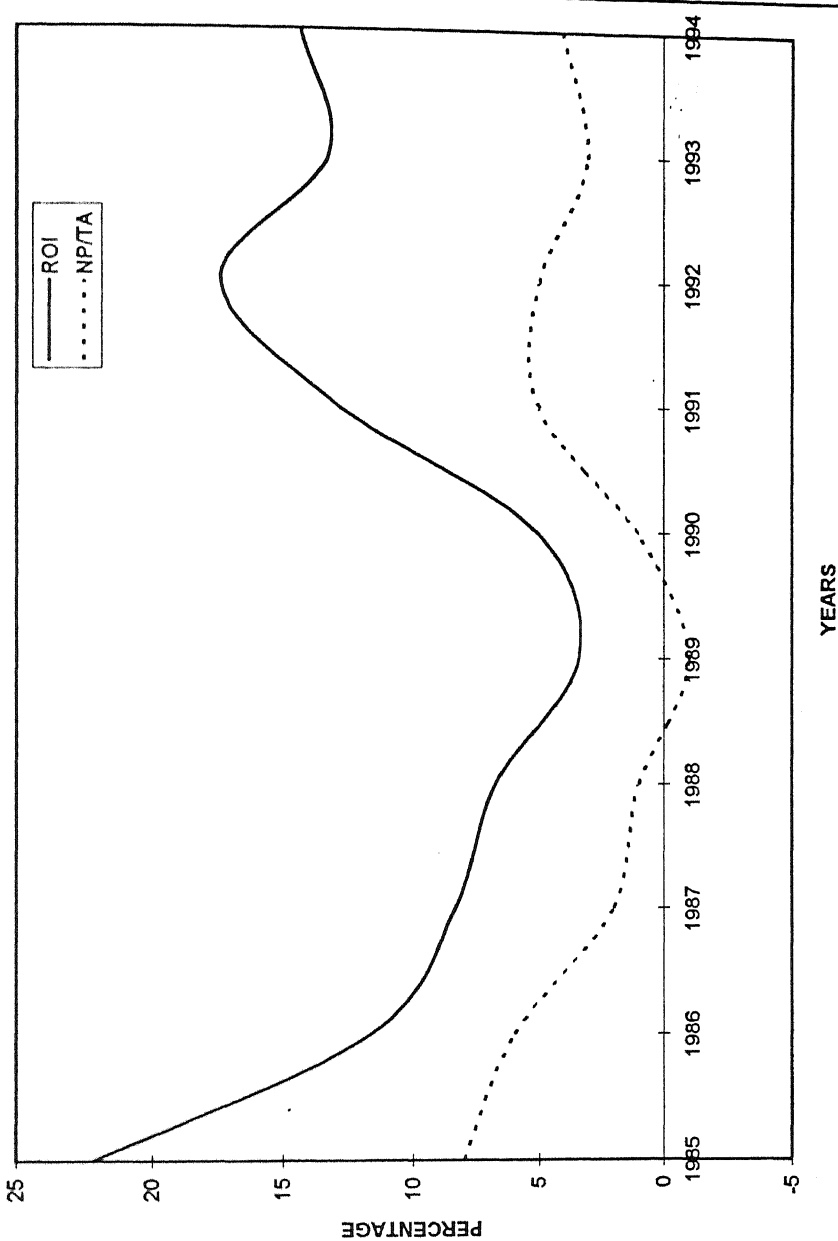
Verifies Proposition No:3, and negates 2.

Years	Mfg Eqpt	Sales	MfgEqpt/yr
1985	398072	1260908	
1986	670343	1391404	272271
1987	710931	1374680	40588
1988	724372	1351232	13441
1989	760509	1325355	36137
1990	765182	1463741	4673
1991	2403289	2580046	1638107
1992	2837502	4093602	434213
1993	3495374	4637082	657872
1994	3201878	5347351	-293496

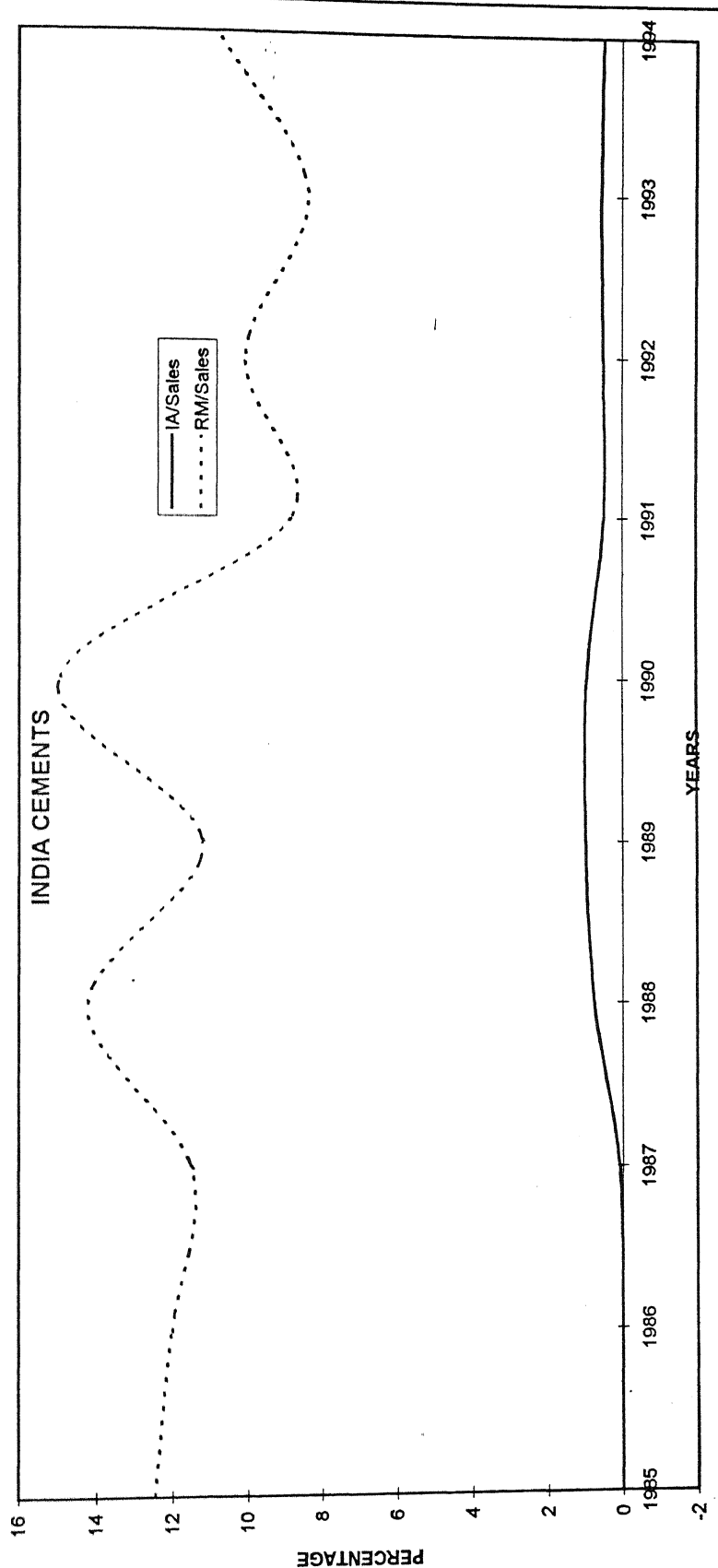


Years	ROI	NP/TA
1985	22.26	8
1986	11.63	6
1987	8.36	2
1988	6.76	1
1989	3.42	-1
1990	5.12	1
1991	12.94	5
1992	17.42	5
1993	13.29	3
1994	14.36	4

INDIA CEMENTS



Years	Sales	Int Assets	Raw Mtrls	IA/Sales	RM/Sales	
1985	1260908	0	157216	0	12.46848	
1986	1391404	0	167096	0	12.00916	
1987	1374680	1333	157377	0.096968	11.44826	
1988	1351232	10399	191905	0.769594	14.20222	
1989	1325355	13333	148185	1.005995	11.18078	
1990	1463741	14290	218648	0.976266	14.93762	
1991	2580046	13300	228406	0.515495	8.852788	
1992	4093602	21496	412994	0.525112	10.08877	
1993	4637082	26350	389260	0.568245	8.394503	
1994	5347351	26268	576515	0.491234	10.78132	



Year	Adv-Mktg (Rupees)
1989	150,000,000
1990	850,000,000
1991	550,000,000
1992	250,000,000
1993	150,000,000

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COMPANY NAME: INDIA CEMENTS

PRODUCT : CEMENTS

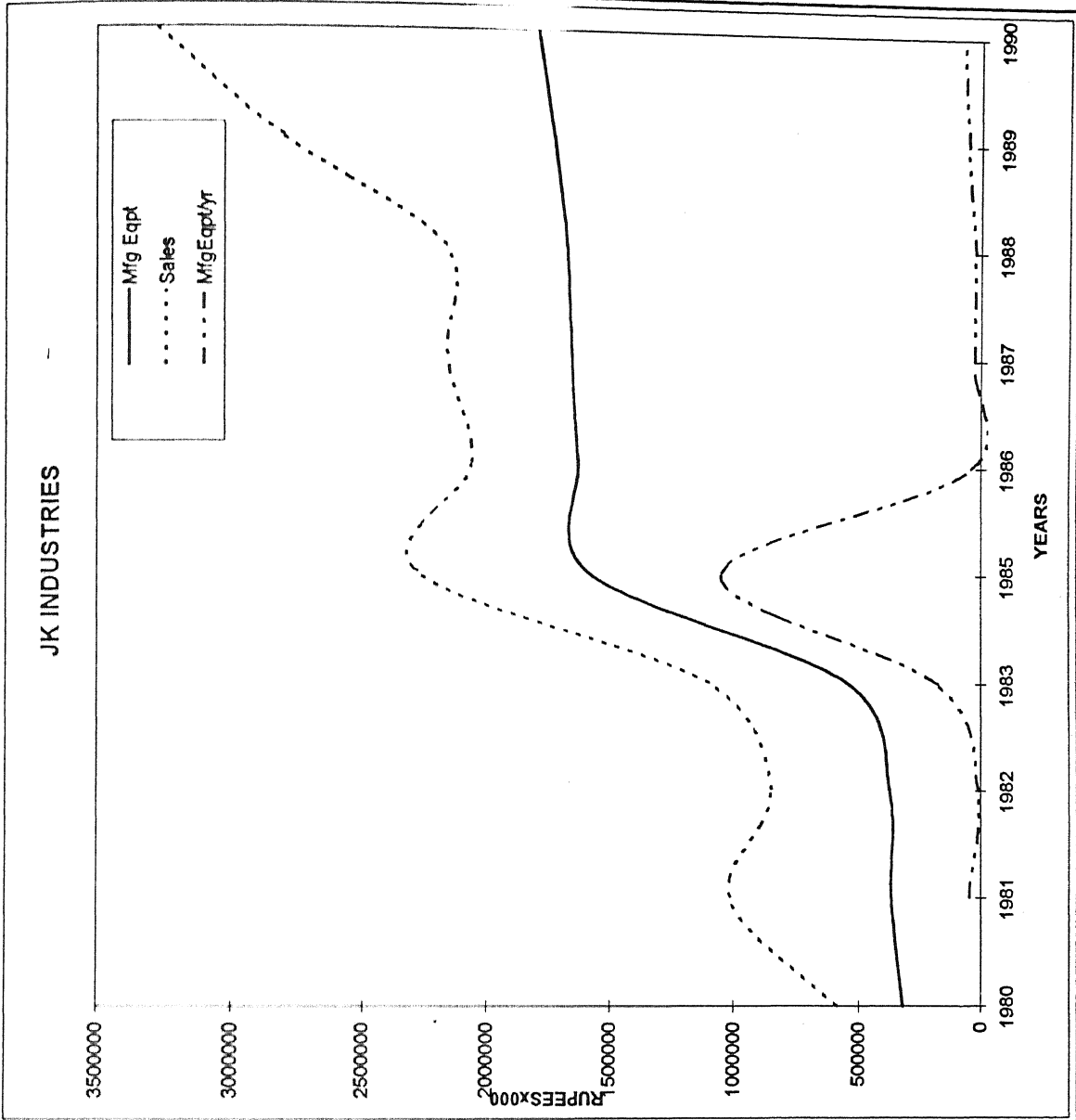
S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	56 to 76 %	
2.	MARKETING EXPENDITURE (% of Sales)	Average 15%	Very high
3.	COST OF RAW MATERIALS (% of Sales)	8 to 14 %	Better than ACC
4.	MARKET SHARES	4.3 %	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0%	
6.	COMPETITORS	1.ACC (14%) 2.DALMIA(1.3%) 3.BIRLA(5%) 4.Coromondal(0.1%)	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	75%	
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	70 %	
9.	ROI PERFORMANCE	Varies from 5 to 25 %	
10.	NET PROFIT/TOTAL ASSETS	Same pattern as above	
11.	CAPACITY UTILIZATION	Licensed 25 Lacs Installed 26 Lacs Actual 13 to 22 Lacs	

JUDGEMENT ABOUT ITS ENVIRONMENT:

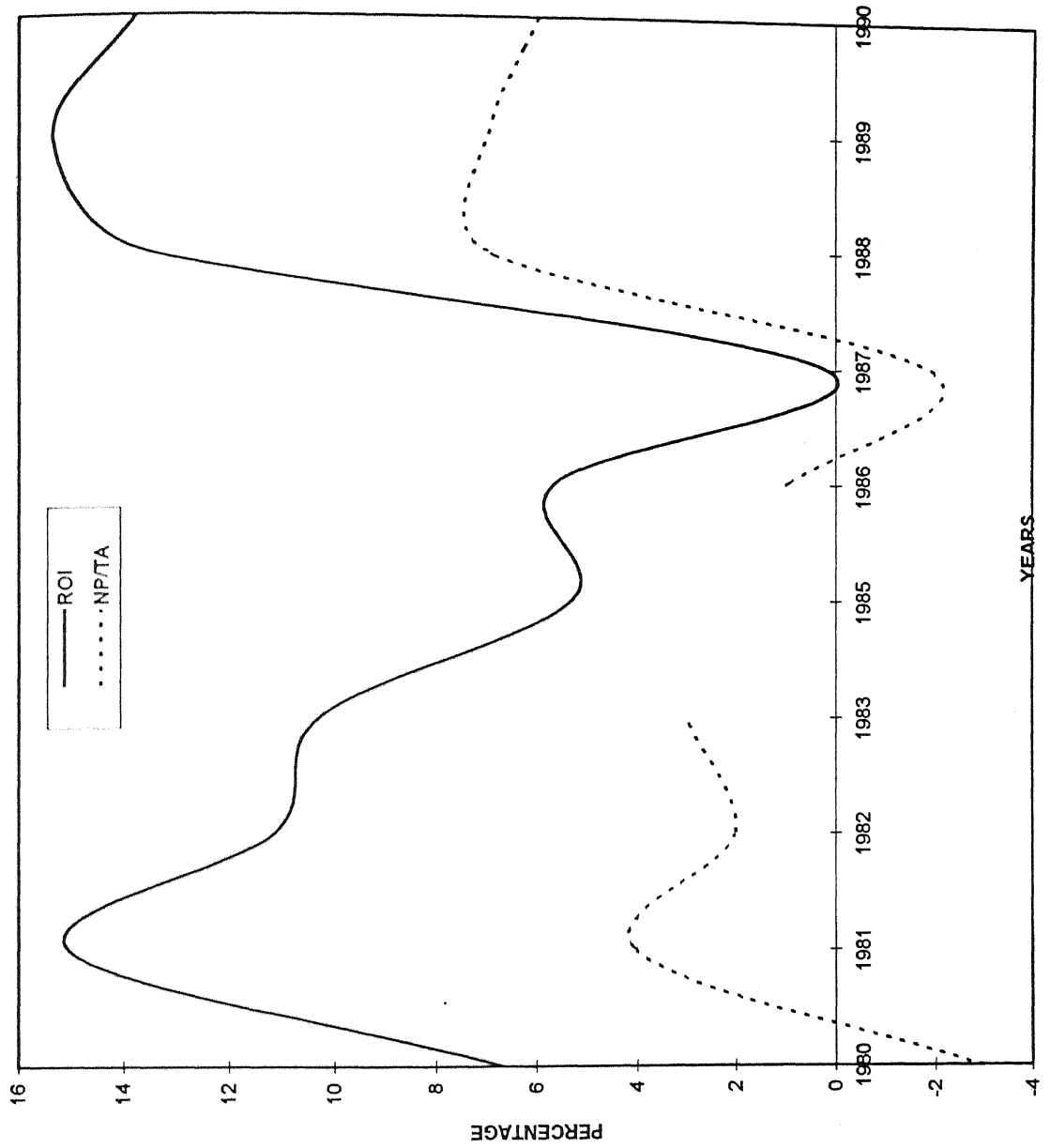
1. Competition is severe .
2. Manufacturing strategy followed is 3 bold approaches.

Verifies Proposition No:5

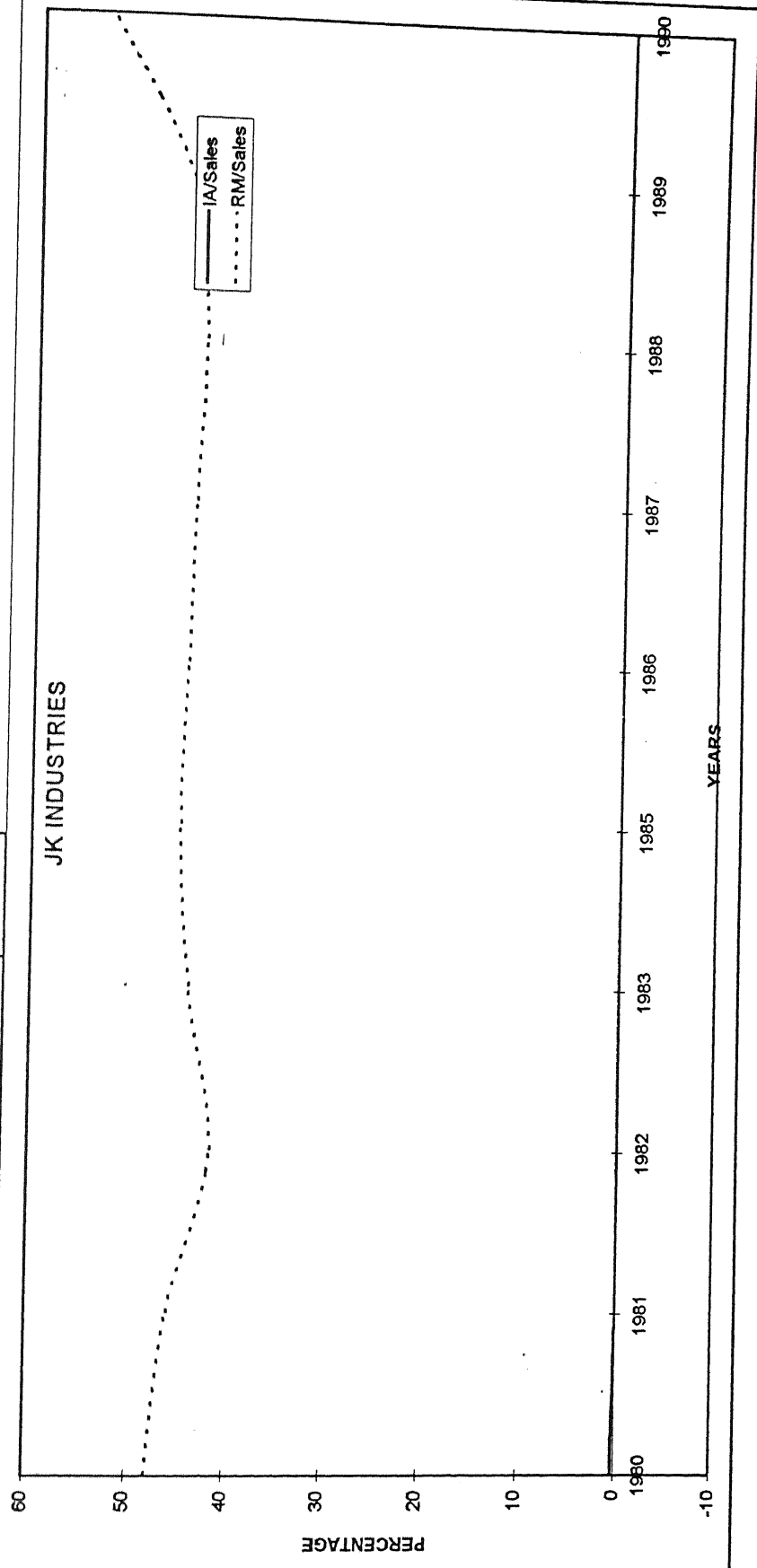
Years	Mfg Eqpt	Sales	MfgEqpt/yr
1980	318938	582784	
1981	367533	1012333	48595
1982	374800	847955	7267
1983	544209	1095334	169409
1985	1593169	2279233	1048960
1986	1633941	2064475	40772
1987	1659728	2161877	25787
1988	1680911	2166824	21183
1989	1731008	2802844	50097
1990	1797032	3267509	66024

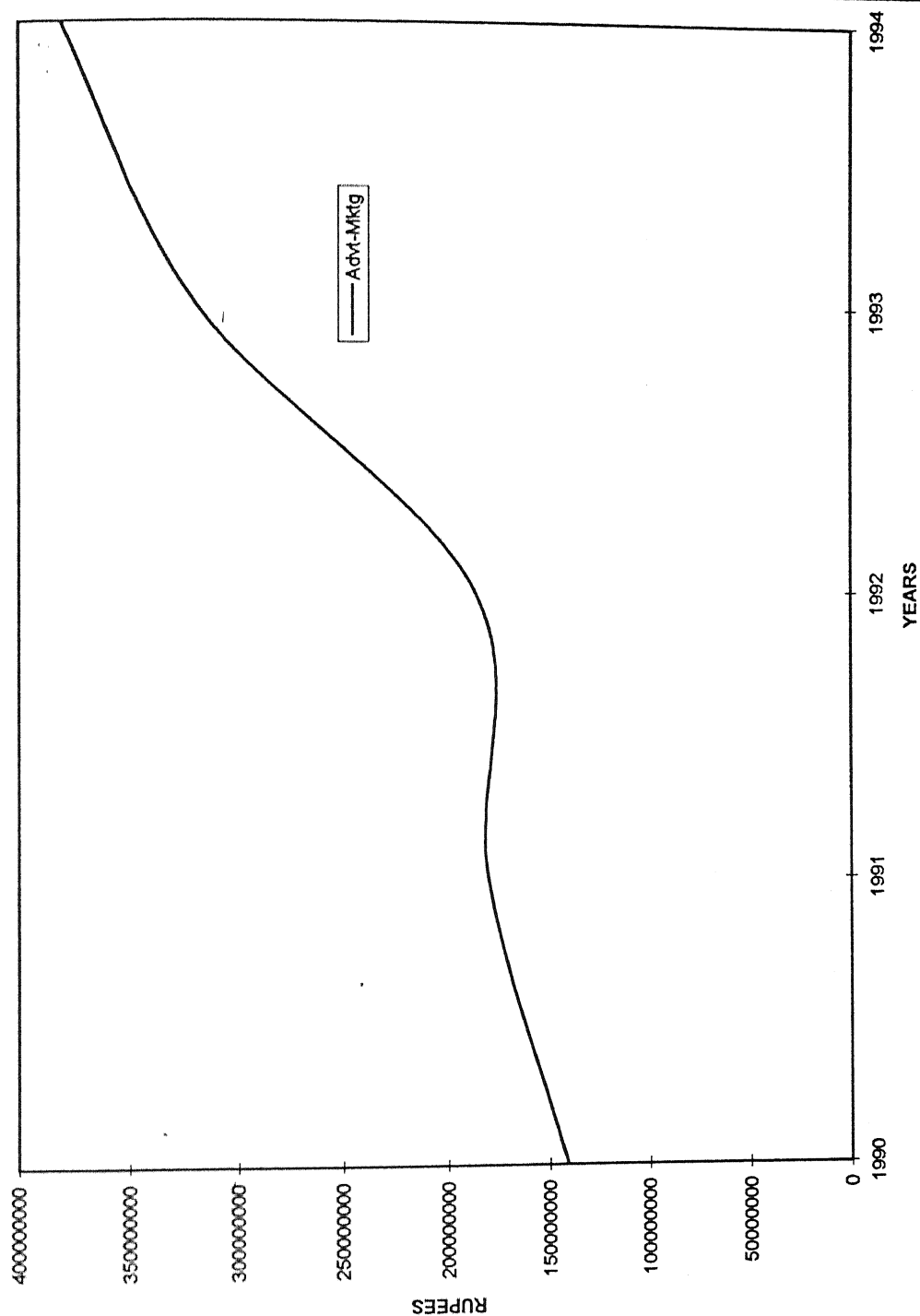
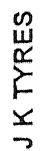


Years	ROI	NP/TA
1980	6.64	-3
1981	15.05	4
1982	11.14	2
1983	10.27	3
1985	5.33	
1986	5.67	1
1987	0.13	-2
1988	13.67	7
1989	15.35	7
1990	13.76	6



Years	Sales	Int Assets	Raw Mtrls	IA/Sales	RM/Sales
1980	582784	1931	279694	0.331341	47.99274
1981	1012333	0	465695	0	46.00216
1982	847955	0	353521	0	41.69101
1983	1095334	0	483926	0	44.18068
1985	2279233	0	1031934	0	45.27549
1986	2064475	0	923027	0	44.71001
1987	2161877	0	954991	0	44.17416
1988	2166824	0	940060	0	43.38423
1989	2802844	0	1258715	0	44.90849
1990	3267509	0	1737376	0	53.17127



[illegible]

COMPANY NAME: J K TYRES

PRODUCT : TYRES

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	High initially-- 73 to 100% Later stabilises to 25%	Sales goes up moderately
2.	MARKETING EXPENDITURE (% of Sales)	NA	Should be substantial
3.	COST OF RAW MATERIALS (% of Sales)	43 to 53 %	
4.	MARKET SHARES	12%	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0%	
6.	COMPETITORS	1.MRF (17.5%) 2.CEAT (13.2%) 3.MODI (11.5%) 4.APPOLO (13%) 5.DUNLOP (8%)	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	65% average	
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	90%	
9.	ROI PERFORMANCE	High 15%,downward trend to Zero and then picking up	
10.	NET PROFIT/TOTAL ASSETS	follows same pattern	
11.	CAPACITY UTILIZATION	Installed 14 Lacs Actual 3 to 10 Lacs	

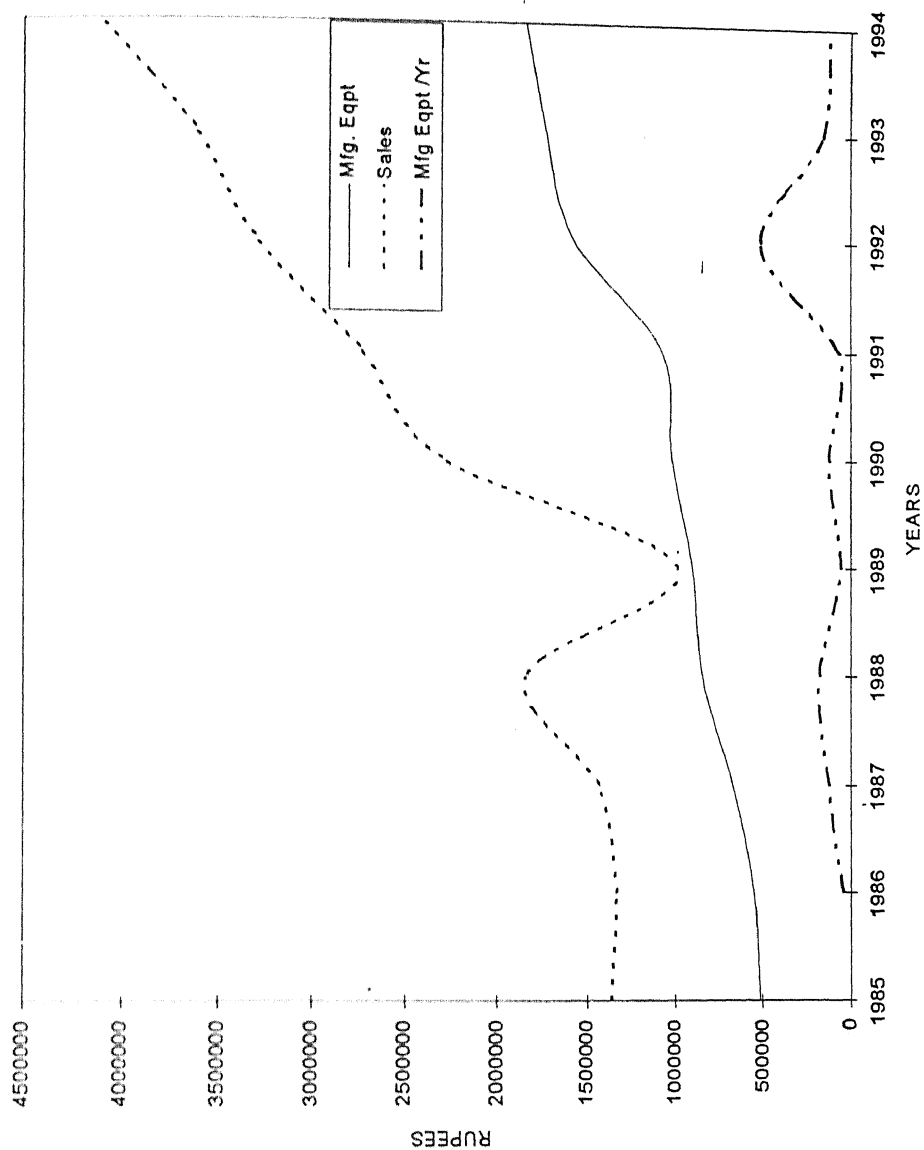
JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Competition is severe .
2. Manufacturing strategy followed is one bold approachand then incremental.
3. Environment is turbulent ;profitability is moderate.

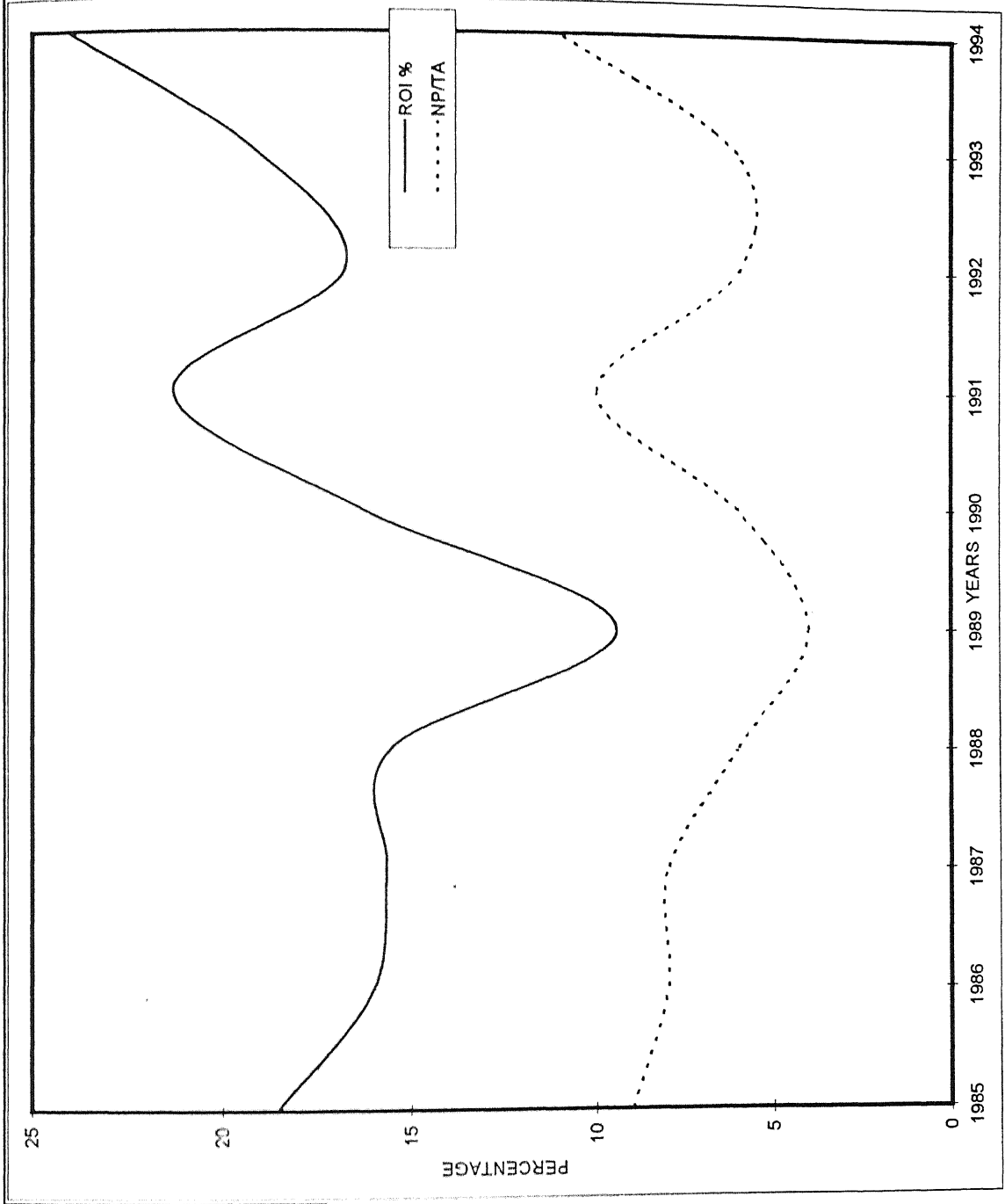
Verifies Proposition No:2 and 4(a).

KIRLOSKAR

Years	Mfg. Eqpt	Sales	Mfg Eqpt /Yr
1985	514379	1361793	
1986	553365	1336293	38986
1987	675970	1433969	122605
1988	849639	1839896	173669
1989	903746	981144	54107
1990	1023849	2299107	120103
1991	1082307	2737524	58458
1992	1588978	3302859	506671
1993	1743021	3615049	154043
1994	1850532	4098419	107511

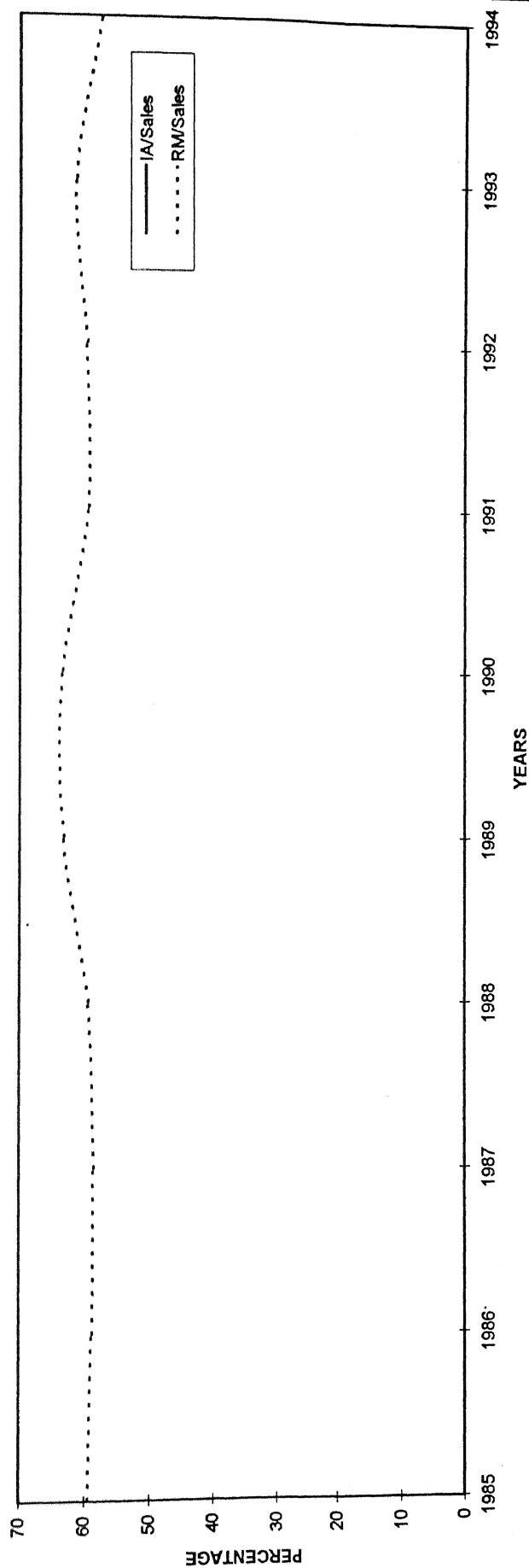


Years	ROI %	NP/TA
1985	18.58	9
1986	16.04	8
1987	15.7	8
1988	15.57	6
1989	9.47	4
1990	16.39	6
1991	21.3	10
1992	16.82	6
1993	19.2	6
1994	24.08	11



Years	Sales	Int Assets	Raw Mtrls	IA/Sales	RM/Sales
1985	1361793	0	810180	0	59.49362
1986	1336293	0	784555	0	58.7113
1987	1433969	0	838939	0	58.50468
1988	1839896	0	1092243	0	59.36439
1989	981144	0	619653	0	63.15617
1990	2299107	0	1458957	0	63.37056
1991	2737524	0	1624975	0	59.3593
1992	3302859	0	1969443	0	59.62843
1993	3615049	0	2216754	0	61.32016
1994	4098419	0	2348329	0	57.29841

KIRLOSKAR



COMPANY NAME: KIRLOSKAR

PRODUCT : I C ENGINES; DIESEL ENGINES

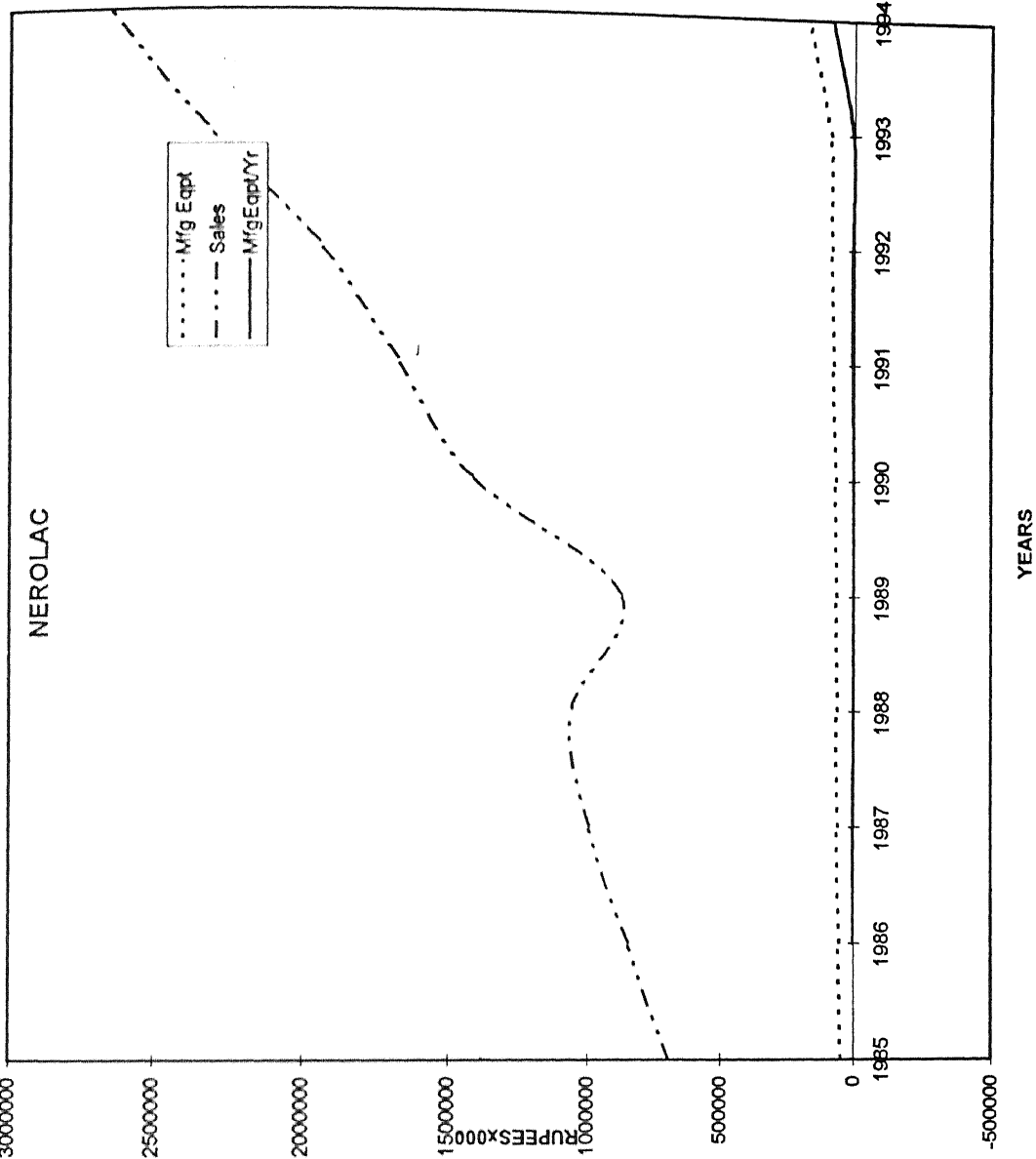
S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	Average 16%; one year 134%	
2.	MARKETING EXPENDITURE (% of Sales)	Max 0.25%	Low
3.	COST OF RAW MATERIALS (% of Sales)	57 to 63 %	
4.	MARKET SHARES	29%	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0%	
6.	COMPETITORS	1. Greaves Ltd.;	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	37 to 48 %	
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	53 to 62 %	
9.	ROI PERFORMANCE	10 to 24 %	
10.	NET PROFIT/TOTAL ASSETS	5 to 10 %	
11.	CAPACITY UTILIZATION	Licensed 8000 Installed 7500 Actual 7219	

JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Competition--Sells only to its sister concerns only.
2. Environment is stable.
3. Manufacturing strategy --incremental and only one bold step in manufacturing .

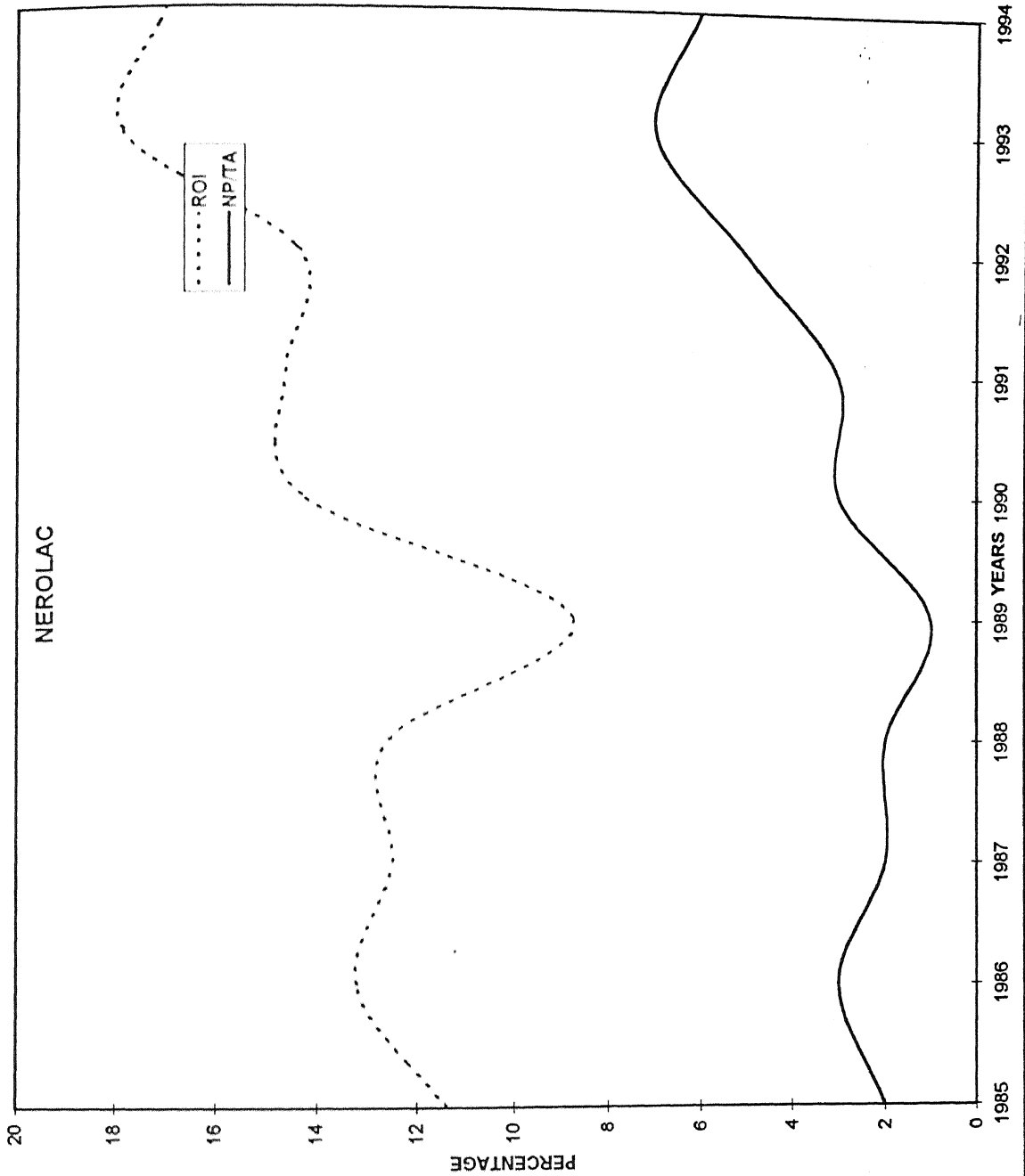
Verifies Proposition No:4(b)

Years	Mfg Eqpt	Sales	MfgEqpt/Yr
1985	48088	695234	
1986	51214	848767	3126
1987	57829	994281	6615
1988	59824	1059560	1995
1989	63261	871160	3437
1990	65736	1411143	2475
1991	73571	1669940	7835
1992	80650	1937410	7079
1993	84616	2313325	3966
1994	164982	2643313	80366



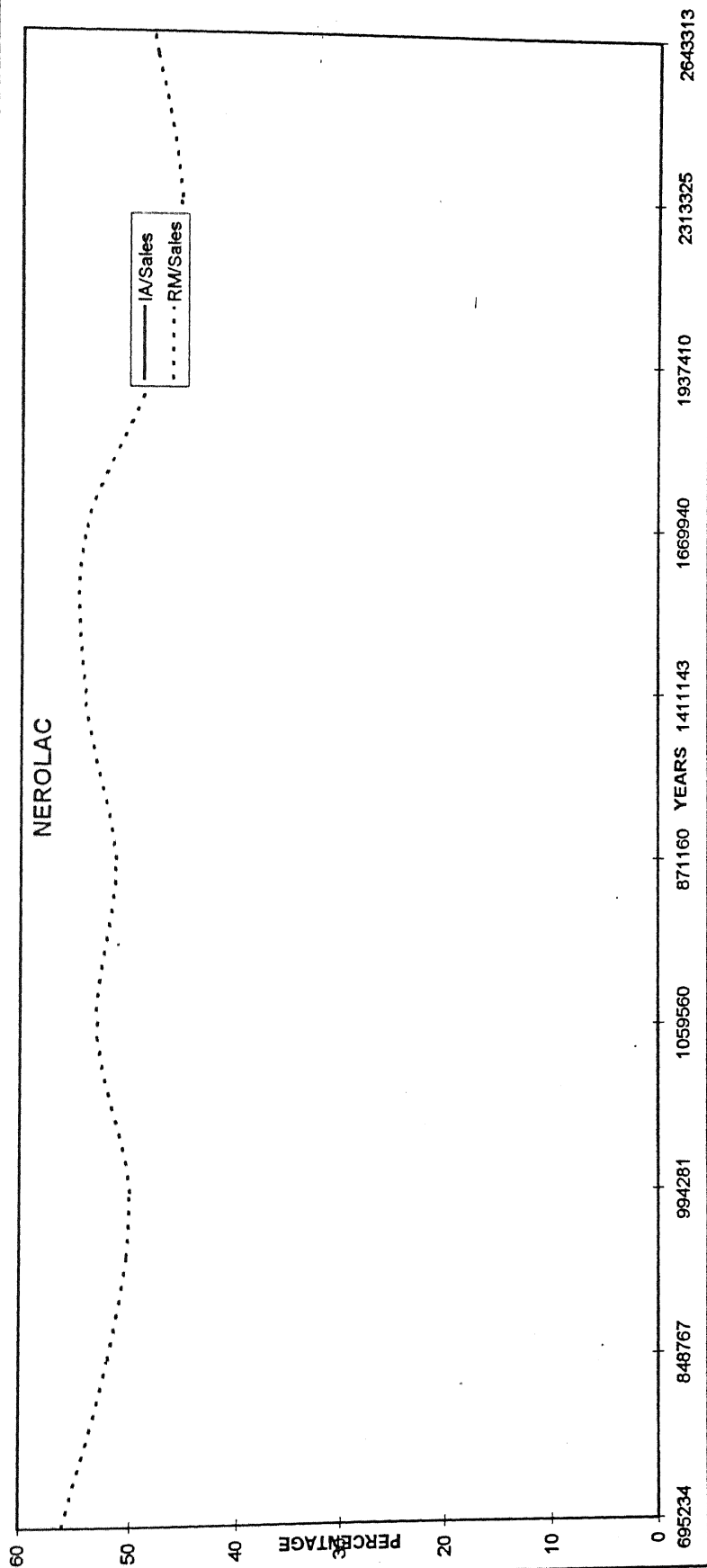
Years	ROI	NP/TA
1985	11.36	2
1986	13.21	3
1987	12.49	2
1988	12.58	2
1989	8.77	1
1990	14.29	3
1991	14.62	3
1992	14.31	5
1993	17.85	7
1994	16.98	6

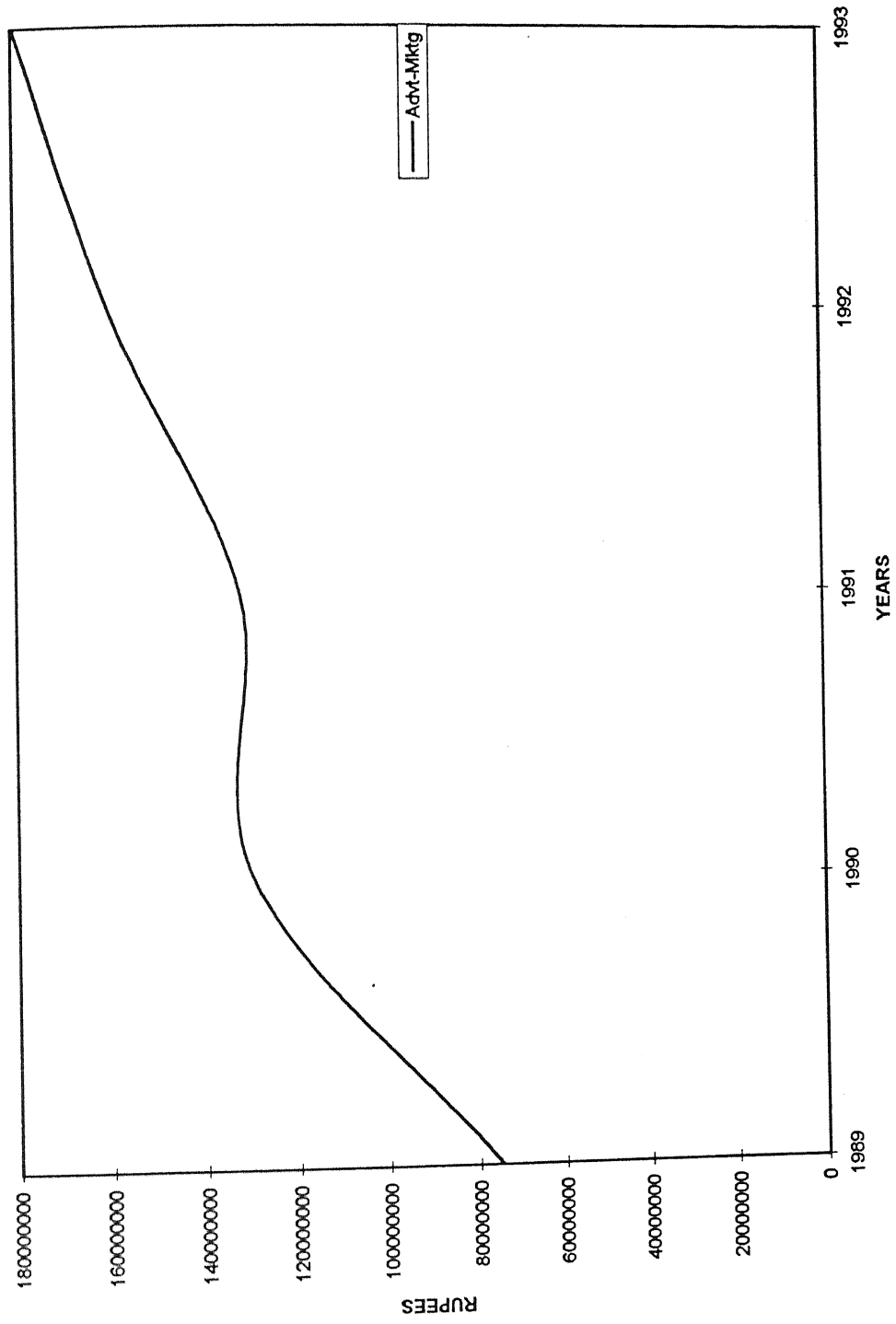
NEROLAC



Sales	Int Assets	Raw Mtrls	IA/Sales	RM/Sales	
695234	0	389715	0	56.05523	
848767	0	440770	0	51.93062	
994281	0	497164	0	50.00236	
1059560	0	561505	0	52.99417	
871160	0	447171	0	51.33052	
1411143	0	764509	0	54.17658	
1669940	0	904043	0	54.13626	
1937410	0	927797	0	47.88852	
2313325	0	1053562	0	45.54319	
2643313	0	1272537	0	48.14174	

NEROLAC





PRODUCT : PAINTS

COMPANY NAME: NEROLAC

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	Goes up substantially	
2.	MARKETING EXPENDITURE (% of Sales)	8 to 9 %	
3.	COST OF RAW MATERIALS (% of Sales)	45 to 55 %	
4.	MARKET SHARES	12.1%	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0%	
6.	COMPETITORS	1. Shalimar (4.8%) 2. Nerolac (12.1%) 3. Berger (8.7%) 4. ICI(India)(7.6%)	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	3 to 7 % average	
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	7 To 8% Average	
9.	ROI PERFORMANCE	around 15%	
10.	NET PROFIT/TOTAL ASSETS	follows same pattern Licensed 33000T	
11.	CAPACITY UTILIZATION	Installed 39000T Actual 5600 to 10000T	

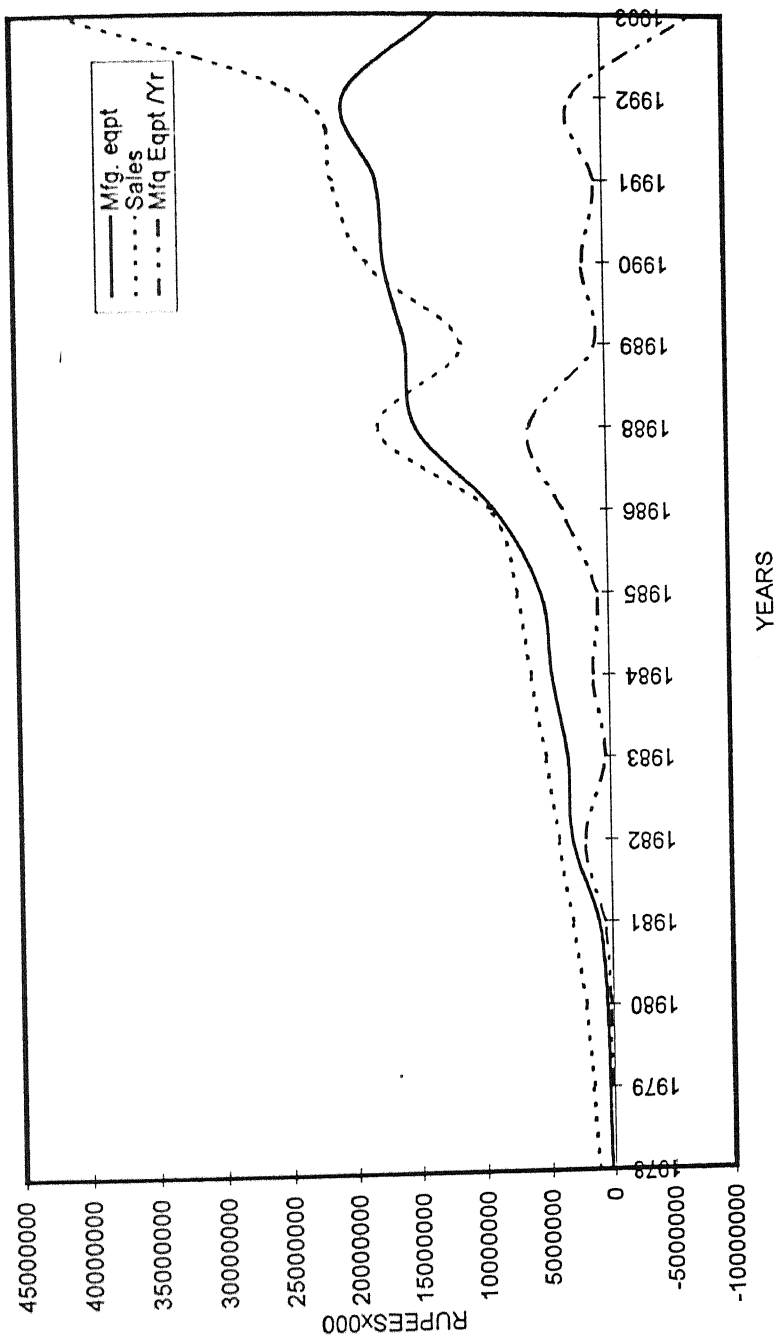
JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Competition is severe .
2. Manufacturing strategy followed is incremental.

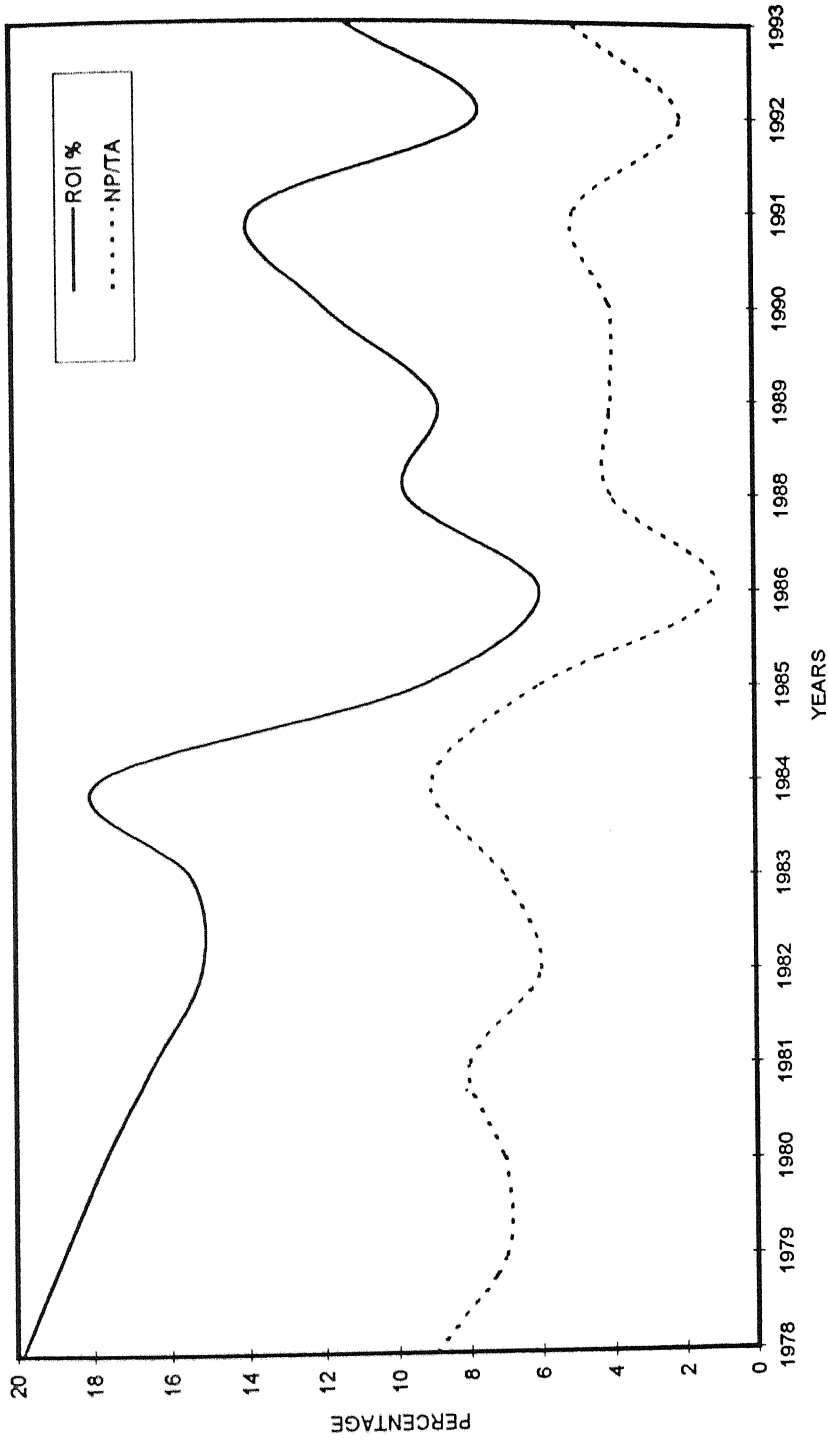
Verifies Proposition No:4(a) and negates 2.

RELIANCE

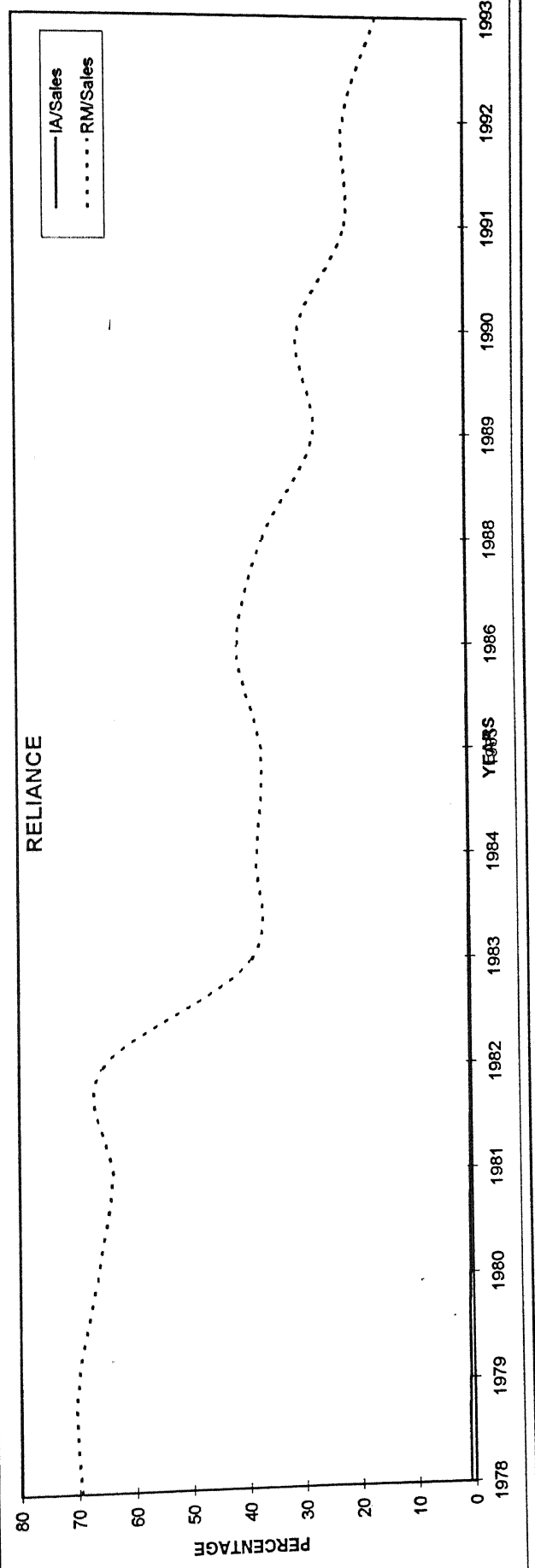
Years	Mfg. eqpt	Sales	Mfg Eqpt /Yr
1978	229883	1218443	
1979	370060	1572995	140177
1980	500426	2097227	130366
1981	1022898	3040800	522472
1982	3042944	4076239	2020046
1983	3345287	5051728	302343
1984	4547789	6077400	1202502
1985	5345000	7119500	797211
1986	8797600	9047900	3452600
1988	14858300	17726700	6060700
1989	15577500	11151800	719200
1990	17187900	18462900	1610400
1991	17728300	21030400	540400
1992	20164500	23017600	2436200
1993	12776700	41062400	-7387800



Years	ROI %	NP/TA
1978	19.87	9
1979	18.82	7
1980	17.75	7
1981	16.46	8
1982	15.18	6
1983	15.45	7
1984	17.84	9
1985	9.25	6
1986	6.01	1
1988	9.68	4
1989	8.8	4
1990	11.9	4
1991	13.74	5
1992	7.63	2
1993	11.32	5



Years	Sales	Int Assets	Raw Mtrls	IA/Sales	RM/Sales
1978	1218443	12624	847782	1.036076	69.57913
1979	1572995	12624	1101133	0.802545	70.00232
1980	2097227	12624	1397993	0.601938	66.65912
1981	3040800	12624	1938495	0.415154	63.74951
1982	4076239	12624	2673060	0.309697	65.57663
1983	5051728	12624	1975972	0.249895	39.11477
1984	6077400	12624	2299251	0.20772	37.83281
1985	7119500	12300	2631600	0.172765	36.96327
1986	9047900	12300	3718900	0.135943	41.10236
1988	17726700	12300	6472000	0.069387	36.5099
1989	11151800	12300	3018500	0.110296	27.06738
1990	18462900	12300	5494700	0.06662	29.76076
1991	21030400	12300	4437200	0.058487	21.09898
1992	23017600	12300	4889800	0.053437	21.24374
1993	41062400	12300	6273000	0.029954	15.27675



COMPANY NAME: RELIANCE

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	Generally on the rise	
2.	MARKETING EXPENDITURE (% of Sales)	Much low	
3.	COST OF RAW MATERIALS (% of Sales)	Earlier 70% but came down to 36%	
4.	MARKET SHARES	Polyster filament Yarn is 30%	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	1%	
6.	COMPETITORS	1. Reymonds 2. Mafatalal 3. Grasim 4. Garden Vareli	
7.	INVESTMENT IN PLANT & MACHINARY (% of Sales)	fluctuating from 40 to 90%	
8.	INVESTMENT IN PLANT & MACHINARY (% of Total Assets)	40 to 60 %	
9.	ROI PERFORMANCE	Heavily fluctuating ;20 to low as 6%	
10.	NET PROFIT/TOTAL ASSETS	9 to 1 %	
11.	CAPACITY UTILIZATION	<u>Licensed</u> <u>Installed</u> <u>Actual</u>	NA

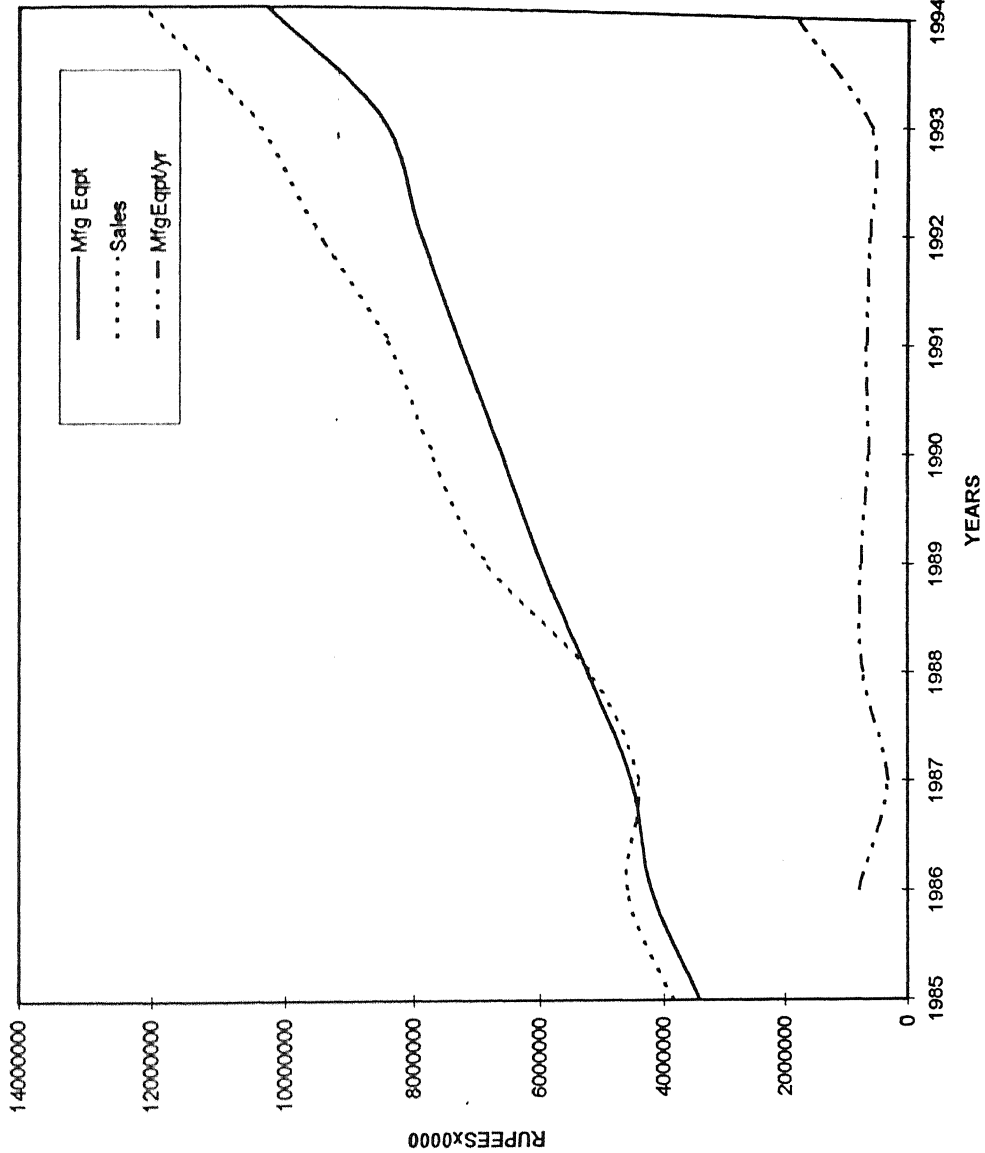
JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Competition is severe.
2. Corporate strategy is not incremental; Big growth everytime.
3. Bold approach to strategy making as well as Manufacturing .

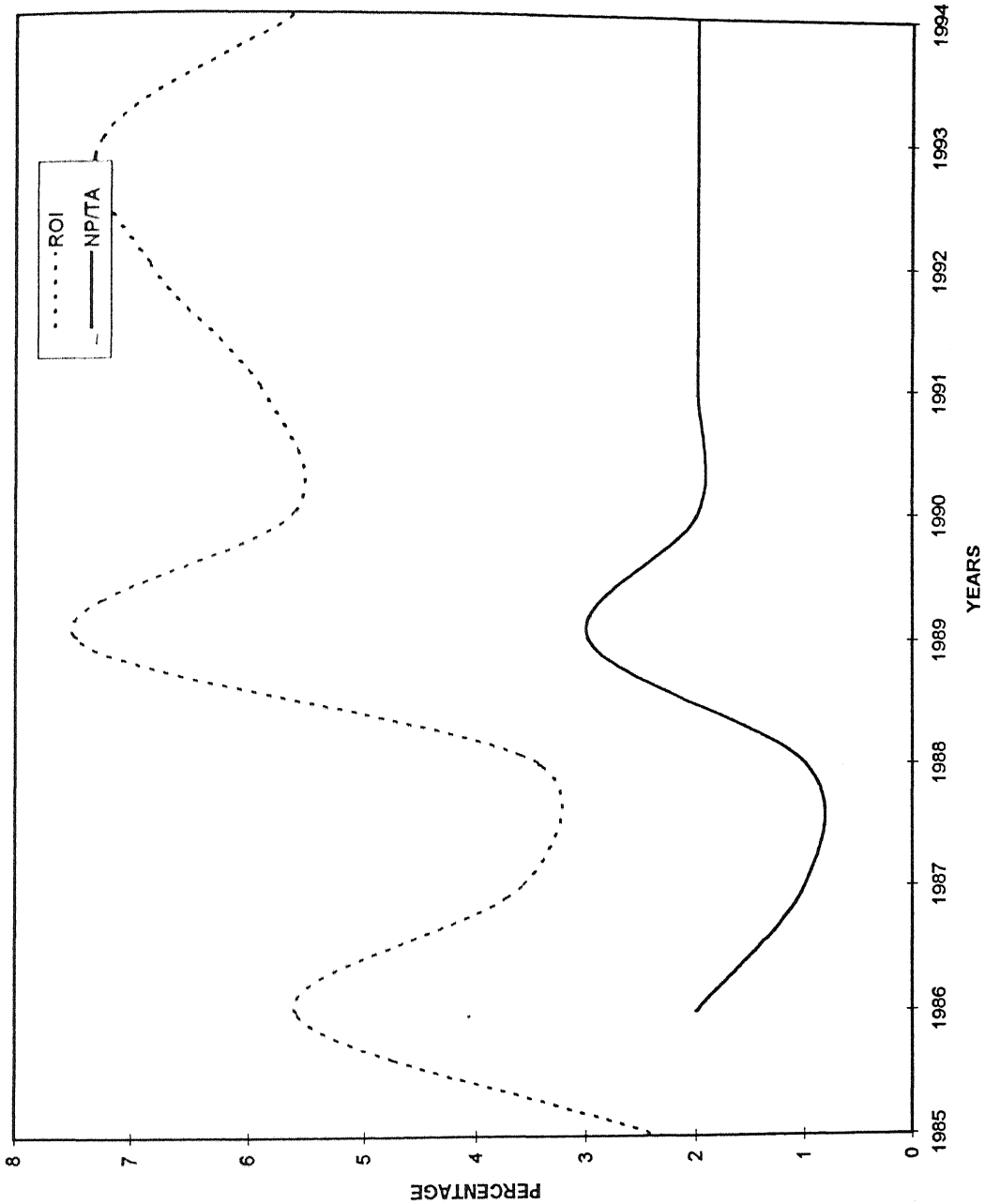
Verifies Proposition No:5

Years	Mfg Eqpt	Sales	MfgEqpt/yr
1985	3402002	3830318	
1986	4205542	4571684	803540
1987	4533865	4406188	328323
1988	5256915	5203766	723050
1989	6008972	6896038	752057
1990	6646329	7733052	637357
1991	7317331	8428198	671002
1992	7928610	9535028	611279
1993	8508725	10471925	580115
1994	10293116	12106416	1784391

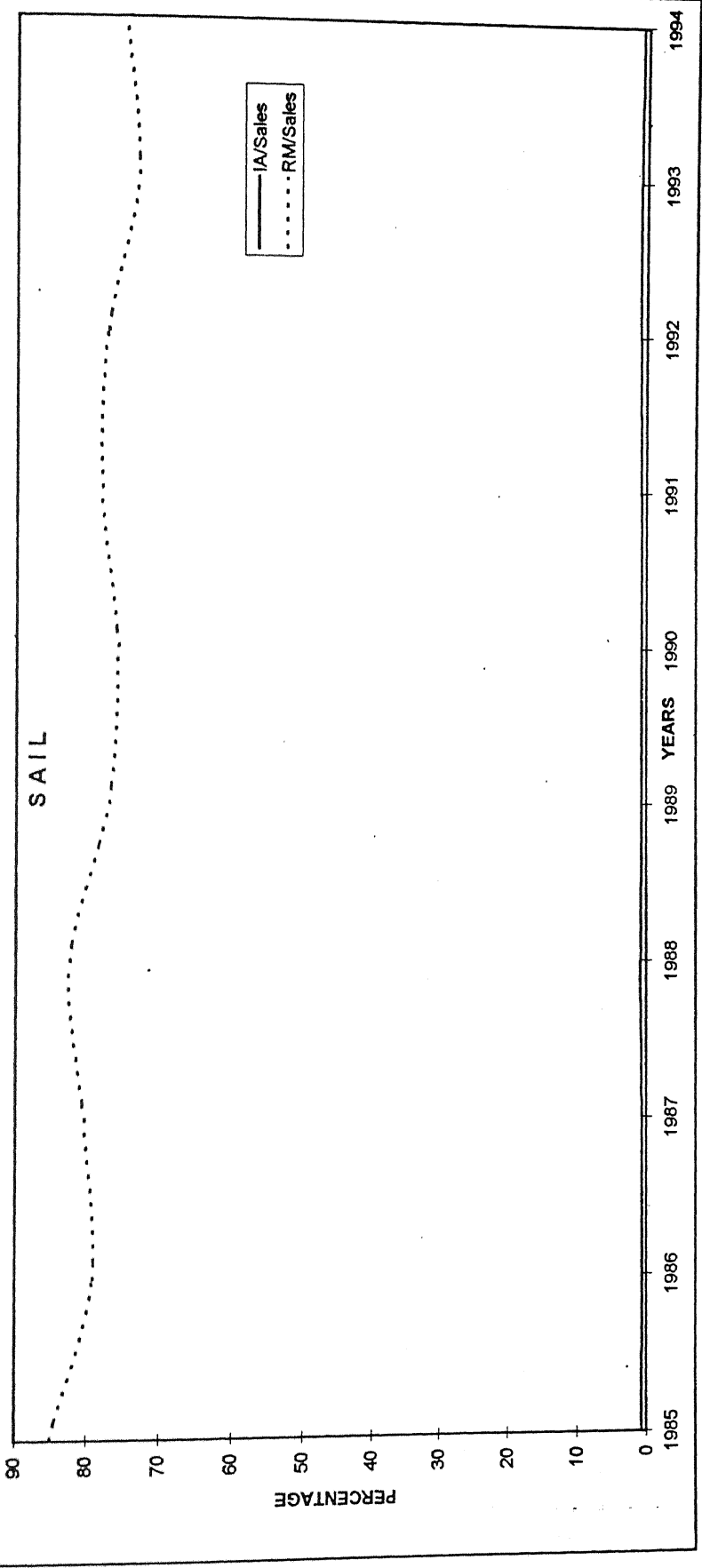
SAIL



Years	ROI	NP/TA
1985	2.28	
1986	5.59	2
1987	3.58	1
1988	3.45	1
1989	7.46	3
1990	5.61	2
1991	5.9	2
1992	6.84	2
1993	7.26	2
1994	5.59	2

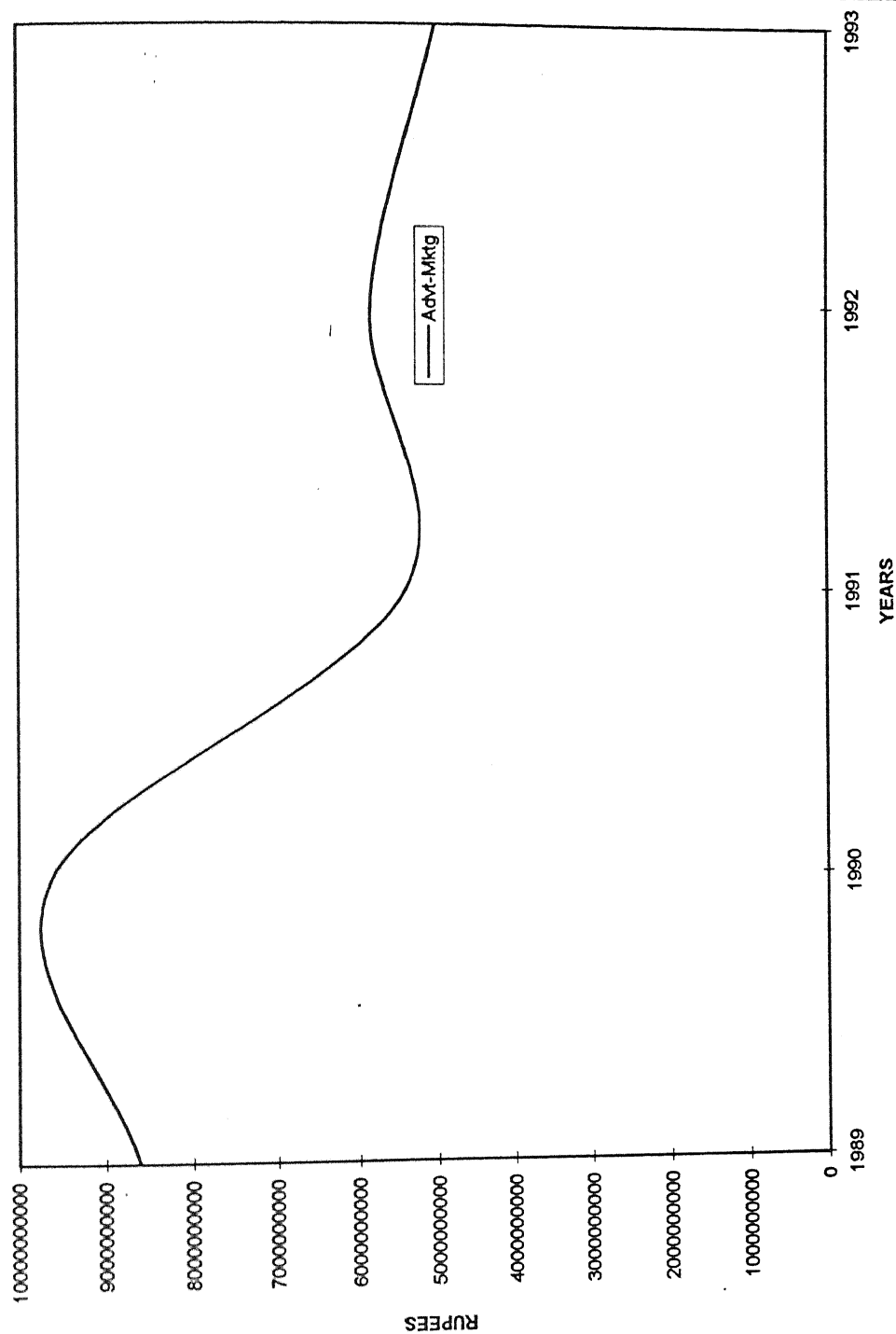


Years	Sales	Int assets	Raw Mrls	IA/Sales	RM/Sales
1985	3830318	30808	3261302	0.80432	85.14442
1986	4571684	27019	3615467	0.591008	79.08392
1987	4406188	25835	3539196	0.586334	80.32331
1988	5203766	44798	4286780	0.860877	82.37842
1989	6896038	48359	5317031	0.701258	77.10269
1990	7733052	51867	5862193	0.670718	75.80698
1991	8428198	67529	6577714	0.801227	78.04413
1992	9535028	86557	7367052	0.907779	77.26303
1993	10471925	100886	7655269	0.963395	73.10279
1994	12106416	97597	9056386	0.806159	74.8065



[illegible]

SAIL



COMPANY NAME: SAIL

PRODUCT : STEEL

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS																
1.	SALES VARIABILITY	moderately growing																	
2.	MARKETING EXPENDITURE (% of Sales)	120% initially and later down to 40%																	
3.	COST OF RAW MATERIALS (% of Sales)	73 to 85%	Substantially high																
4.	MARKET SHARES	44.5%																	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	1%																	
6.	COMPETITORS	1.TISCO (16.9%) 2.Mukund (2.4%) 3.Rastriya Ispat Nigam (9.5%)																	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	81 to 103%	Very High																
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	Initial boost of 113% in '89 and later 10% average																	
9.	ROI PERFORMANCE	2 to 7% only	Profitability wise low.																
10.	NET PROFIT/TOTAL ASSETS	2 to 3 %																	
11.	CAPACITY UTILIZATION	<table border="1"> <tr> <td></td><td>Pig Iron</td><td>Liquid Steel</td><td>Saleable Steel</td></tr> <tr> <td>Licensed</td><td>18 Lacs</td><td>114 Lacs</td><td>87 Lacs</td></tr> <tr> <td>Installed</td><td>18 Lacs</td><td>116 Lacs</td><td>87 Lacs</td></tr> <tr> <td>Actual</td><td>10.72 Lacs</td><td>0.24 Lacs</td><td>40 to 70 Lacs</td></tr> </table>		Pig Iron	Liquid Steel	Saleable Steel	Licensed	18 Lacs	114 Lacs	87 Lacs	Installed	18 Lacs	116 Lacs	87 Lacs	Actual	10.72 Lacs	0.24 Lacs	40 to 70 Lacs	
	Pig Iron	Liquid Steel	Saleable Steel																
Licensed	18 Lacs	114 Lacs	87 Lacs																
Installed	18 Lacs	116 Lacs	87 Lacs																
Actual	10.72 Lacs	0.24 Lacs	40 to 70 Lacs																

JUDGEMENT ABOUT ITS ENVIRONMENT:

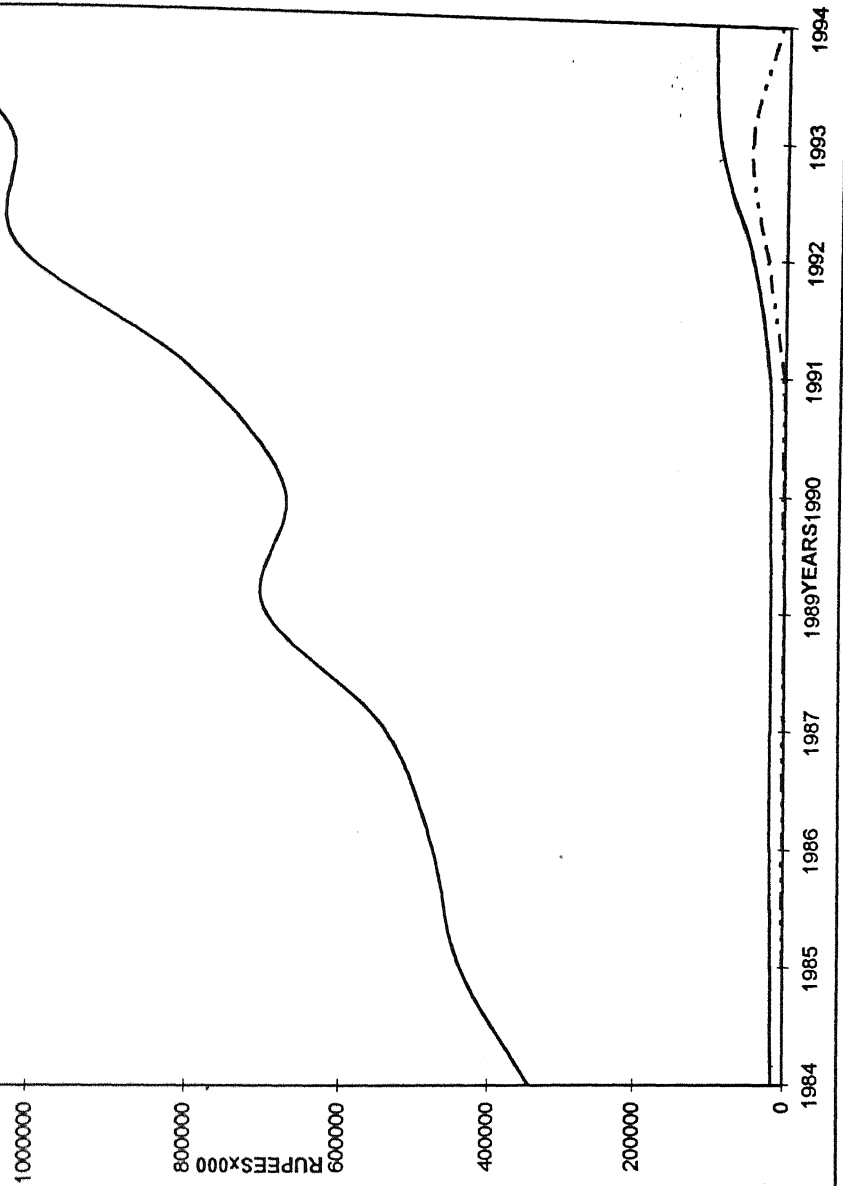
1. Competition is comfortable due to the firm being market leader.
2. Environment is stable.
3. Approach to manufacturing is incremental ; a large investment in 1994. Do not really have economies of scale, may be due to incremental approach.

Verifies Proposition No:2 & 4 (a)

Years	Mfg Eqpt	Sales	MfgEqpt/Yr
1984	15449	341700	
1985	17033	438850	1584
1986	18257	476816	1224
1987	18686	543000	429
1989	17670	701722	-1016
1990	19058	675110	1388
1991	20650	799742	1592
1992	44259	1017574	23609
1993	90151	1027934	45892
1994	98633	1201002	8482

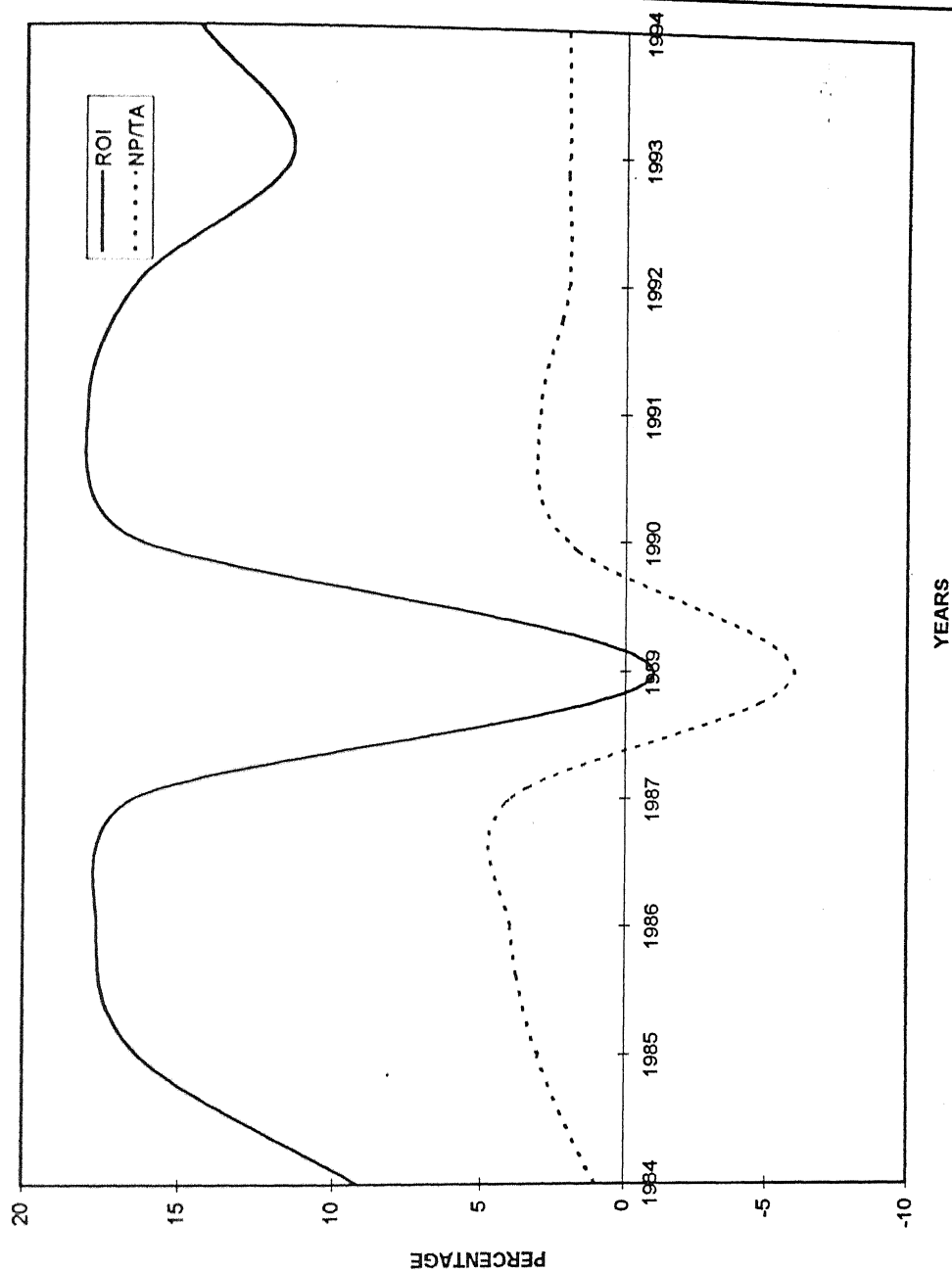
SHALIMAR PAINTS

— Mfg Eqpt
— Sales
- - - MfgEqpt/Yr

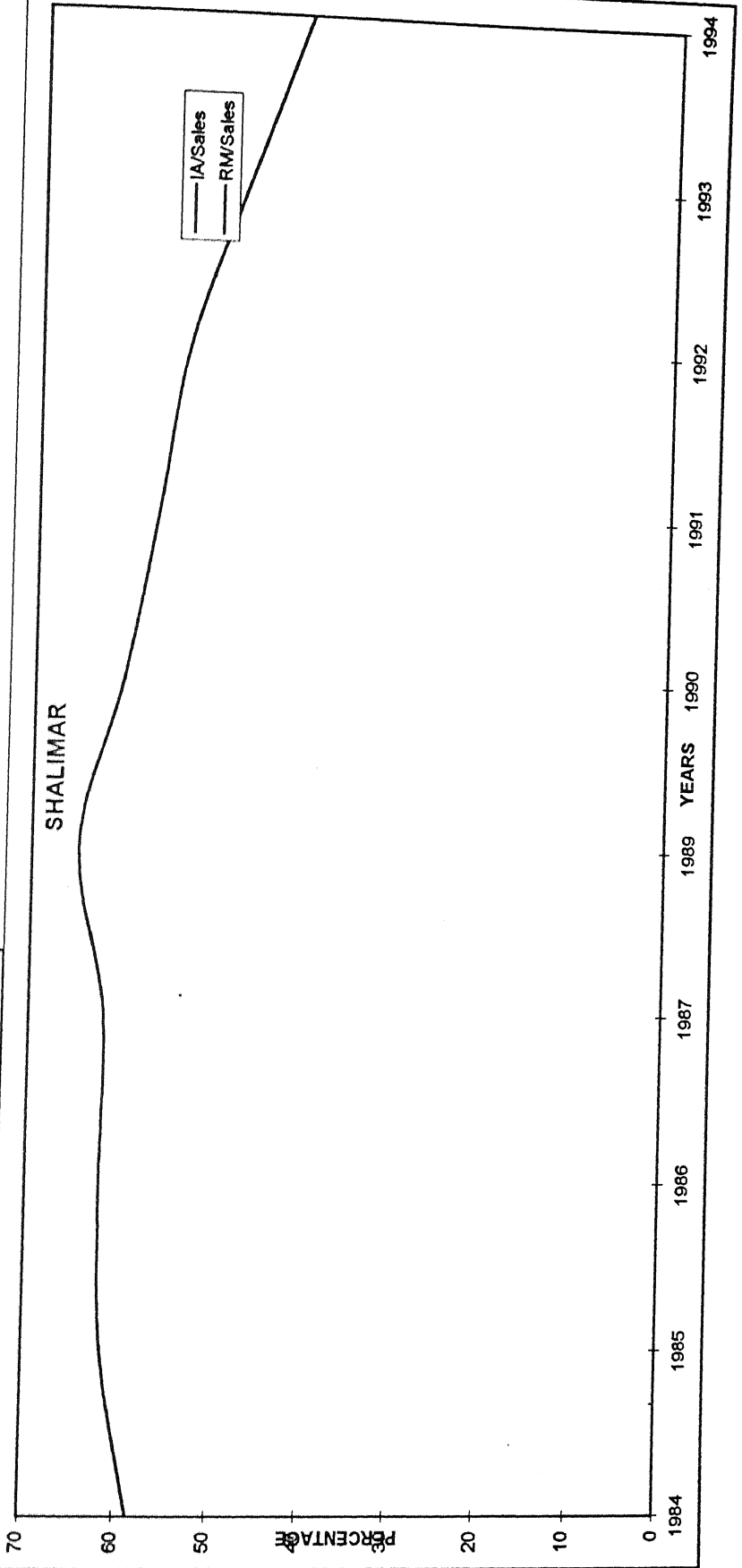


Years	ROI	NP/TA
1984	9.15	1
1985	16.29	3
1986	17.64	4
1987	16.34	4
1989	-0.99	-6
1990	16.49	2
1991	18	3
1992	16.38	2
1993	11.39	2
1994	14.43	2

SHALIMAR



Years	Int Assets	Raw Mtrls	IA/Sales	RM/Sales
1984	0	199625	0	58.42113
1985	0	270820	0	61.71129
1986	0	296333	0	62.14829
1987	0	337101	0	62.08122
1989	0	456751	0	65.09002
1990	0	408581	0	60.52066
1991	0	457598	0	57.2182
1992	0	551930	0	54.23979
1993	0	494227	0	48.07964
1994	6.5	498895	0.000541	41.5399



PRODUCT : PAINTS

COMPANY NAME: SHALIMAR PAINTS

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	Stable around 10%	
2.	MARKETING EXPENDITURE (% of Sales)	12%	
3.	COST OF RAW MATERIALS (% of Sales)	41 TO 65 %	
4.	MARKET SHARES	4.8%	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0%	
6.	COMPETITORS	1.Nerolac (12.1%) 2.Asian Paints (25.3%) 3.Berger (8.7%) 4.ICI (India) (7.6%)	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	5 % Average	
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	7 to 13 % average	
9.	ROI PERFORMANCE	around 15%	
10.	NET PROFIT/TOTAL ASSETS	Follows same pattern	
11.	CAPACITY UTILIZATION	Licensed 28000 T Installed NA Actual 20000 T	

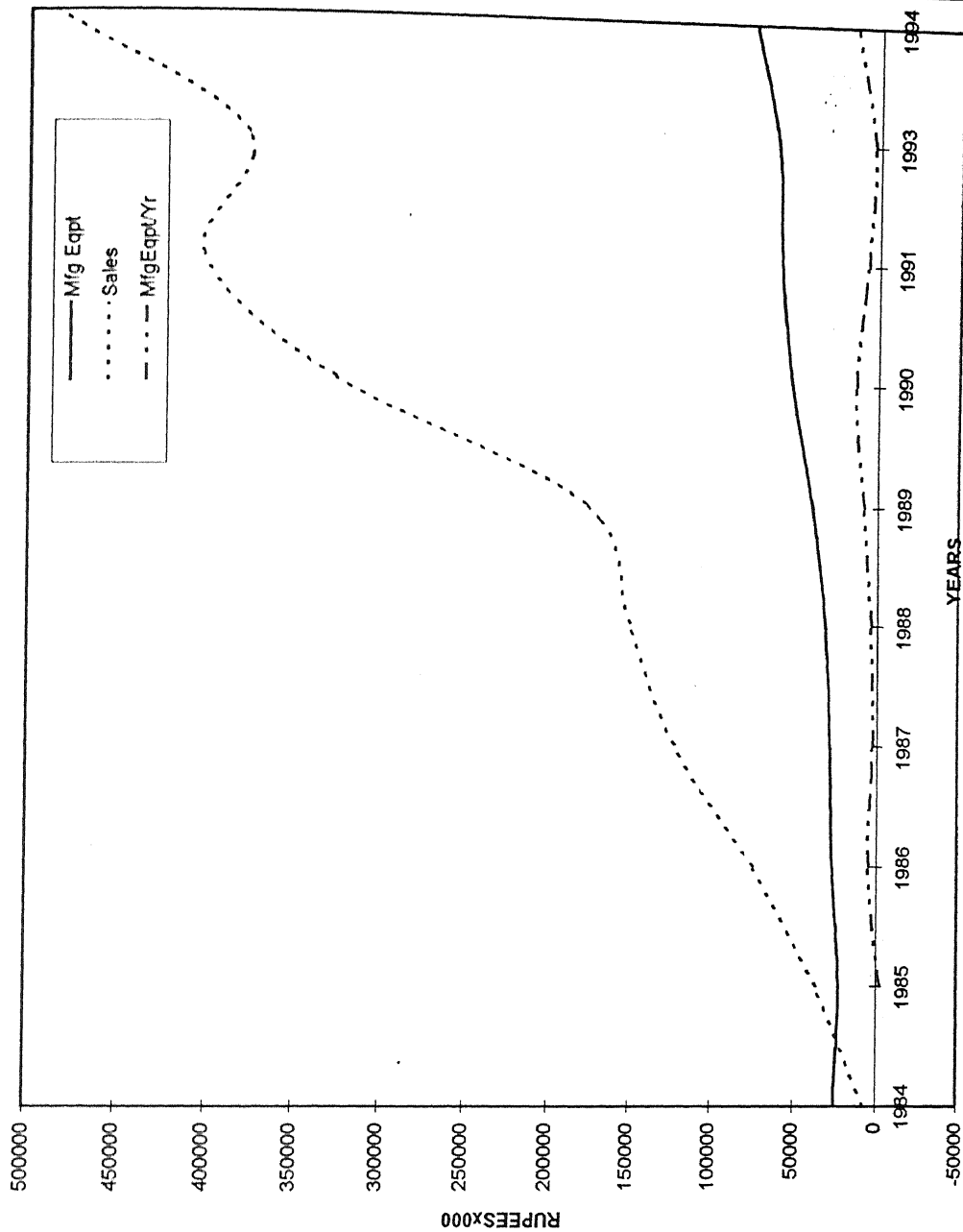
JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Competition is severe .
2. Environment is turbulent
3. Manufacturing strategy followed is incremental

Verifies Proposition No:2 & 4(a)

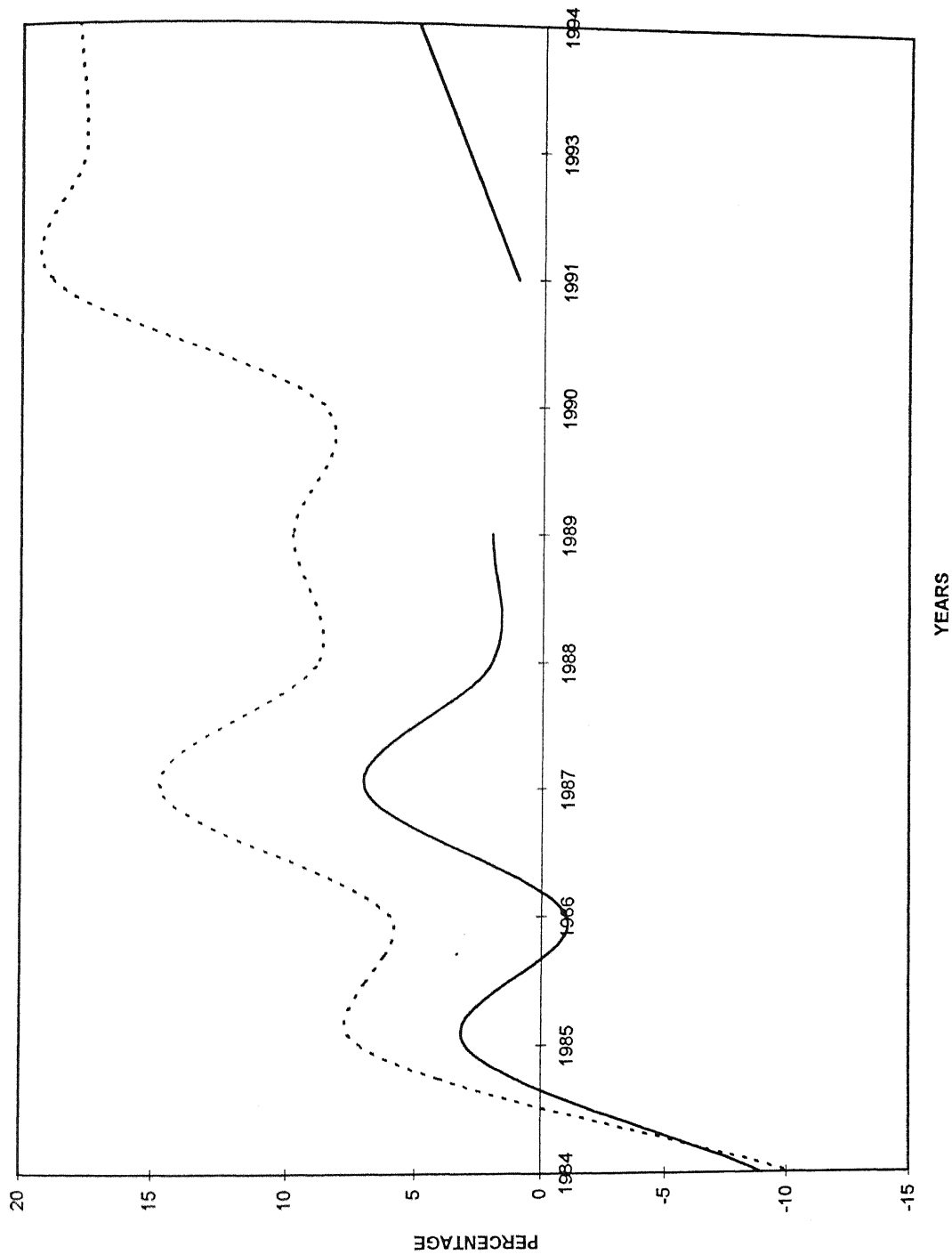
SRICHAKRA TYRES

Years	Mfg Eqpt	Sales	MfgEqpt/Yr
1984	25390	6686	
1985	22468	36070	-2922
1986	26551	74105	4083
1987	28561	122418	2010
1988	31553	150792	2992
1989	39480	177859	7927
1990	52426	326314	12946
1991	58936	402206	6510
1993	61679	376826	2743
1994	75725	484632	14046

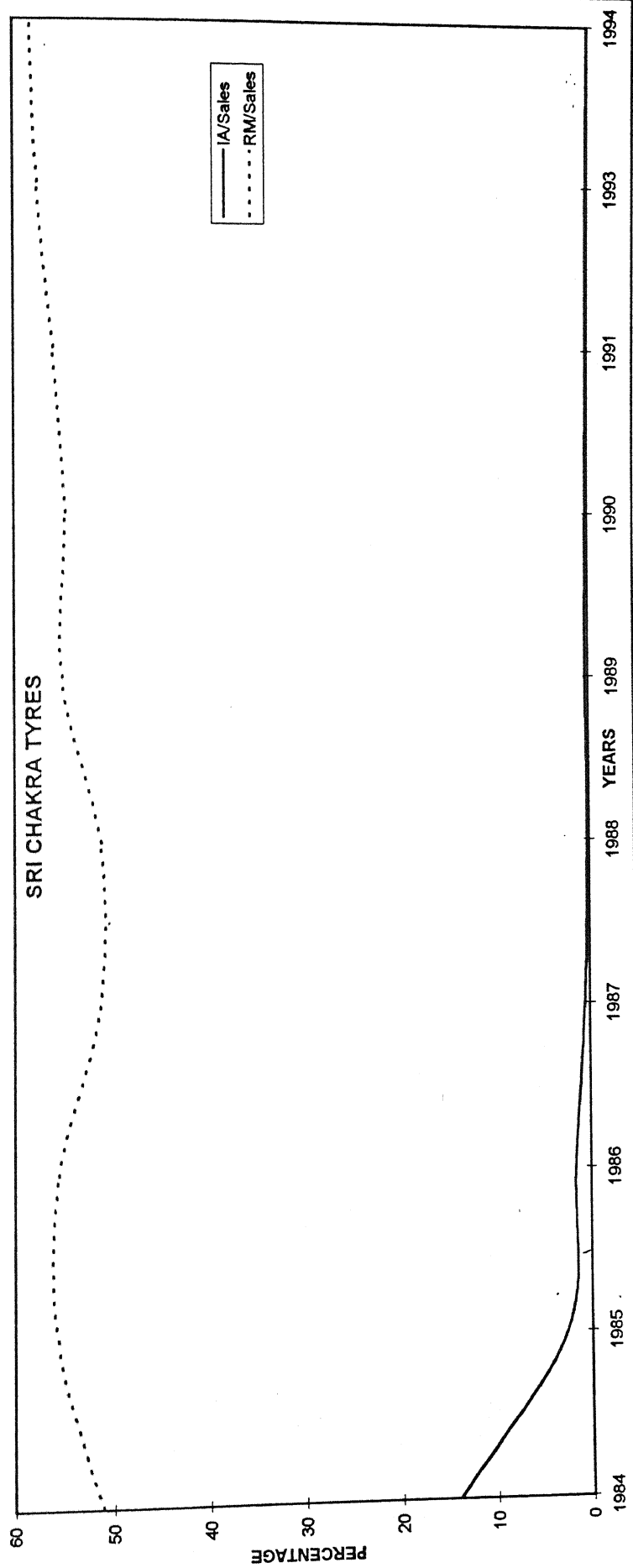


Appendix "T2"

Years	ROI	NP/TA
1984	-10.46	-9
1985	7.08	3
1986	5.92	-1
1987	14.68	7
1988	8.8	2
1989	9.76	2
1990	8.61	
1991	18.78	1
1993	17.52	3
1994	17.77	5



Years	Sales	Int Assets	Raw Mtrls	IA/Sales	RM/Sales
1984	6686	938	3413	14.02931	51.04696
1985	36070	940	20036	2.606044	55.54755
1986	74105	1160	41123	1.565346	55.49288
1987	122418	636	62802	0.519531	51.30128
1988	150792	318	77196	0.210887	51.1937
1989	177859	668	97954	0.375578	55.07396
1990	326314	910	178607	0.278872	54.7347
1991	402206	682	224967	0.169565	55.93328
1993	376826	550	216824	0.145956	57.53955
1994	484632	370	281722	0.076347	58.13112



COMPANY NAME: SRI CHAKRA

Appendix" T5"

PRODUCT : TYRES

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	High--439;105% Moderate--65;83% Low--17;23;28%	
2.	MARKETING EXPENDITURE (% of Sales)	N A	
3.	COST OF RAW MATERIALS (% of Sales)	51 to 58 %	
4.	MARKET SHARES	0.7%	Very low
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0.07 to 2.5% High of 14 %	
6.	COMPETITORS	1.MRF(17.5%) 2.CEAT(13.2%) 3.APPOLO(13%) 4.MODI(11.5%) 5.JK TYRES(12%)	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	fluctuating	
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	25 to 55%	
9.	ROI PERFORMANCE	fluctuating	
10.	NET PROFIT/TOTAL ASSETS	fluctuating	
11.	CAPACITY UTILIZATION	Licensed 15 lacs Installed 15 lacs Actual 2.0 to 15 lacs	

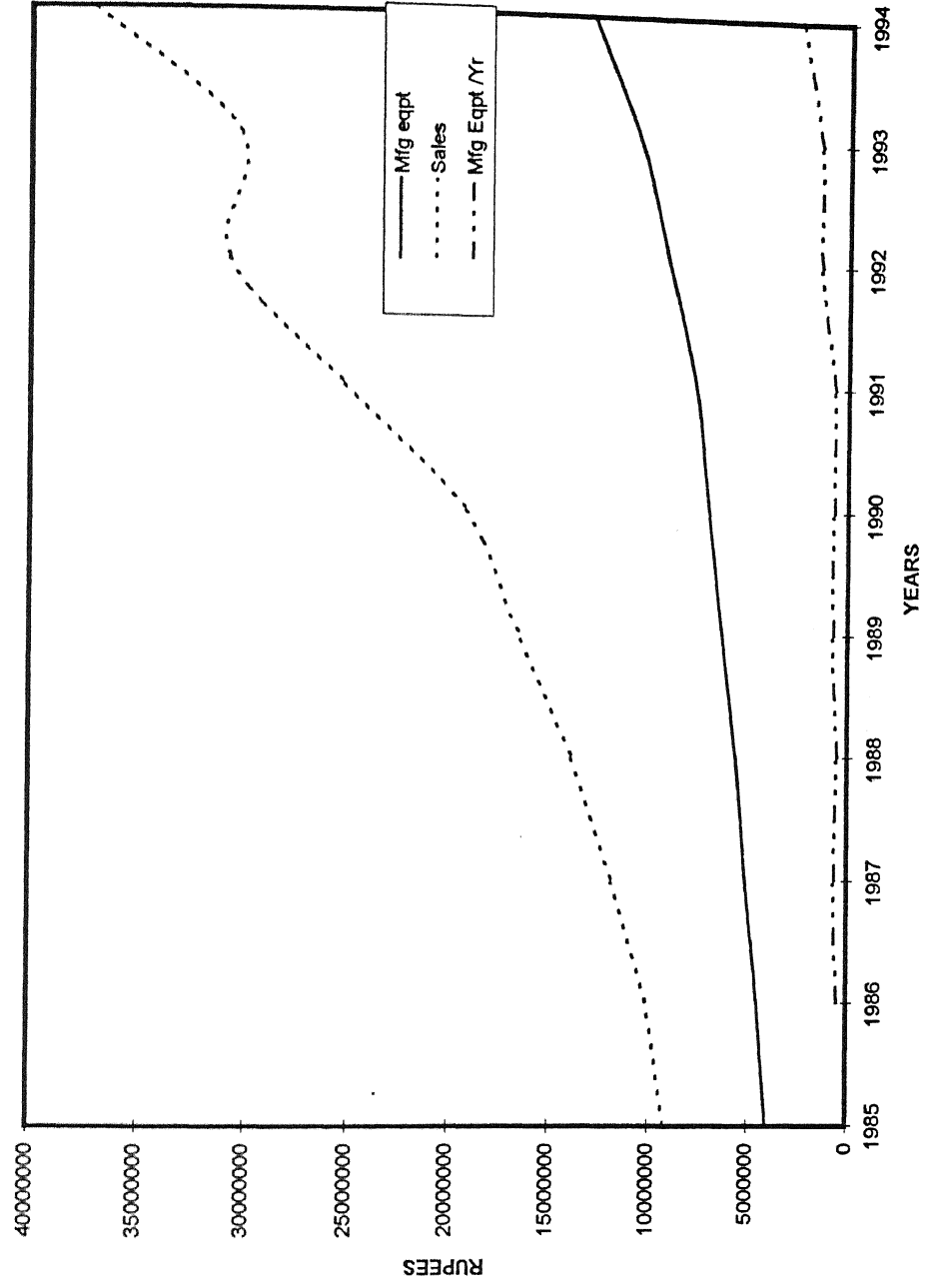
JUDGEMENT ABOUT ITS ENVIRONMENT:

- 1.Competition is severe .
- 2.Environment is turbulent ; manufacturing strategy was incremental.

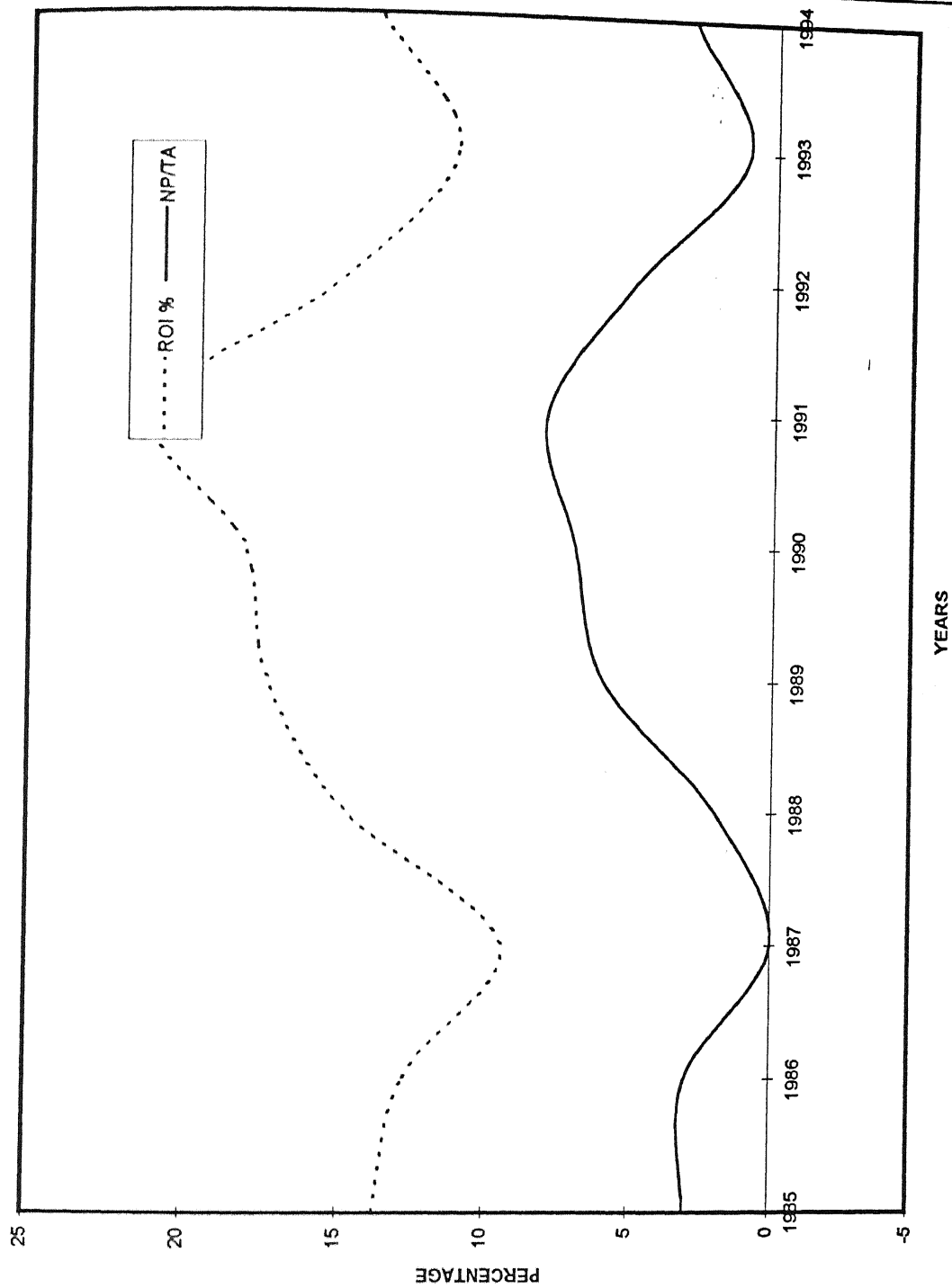
Verifies Proposition No:4(a), and negates 2.

TELCO

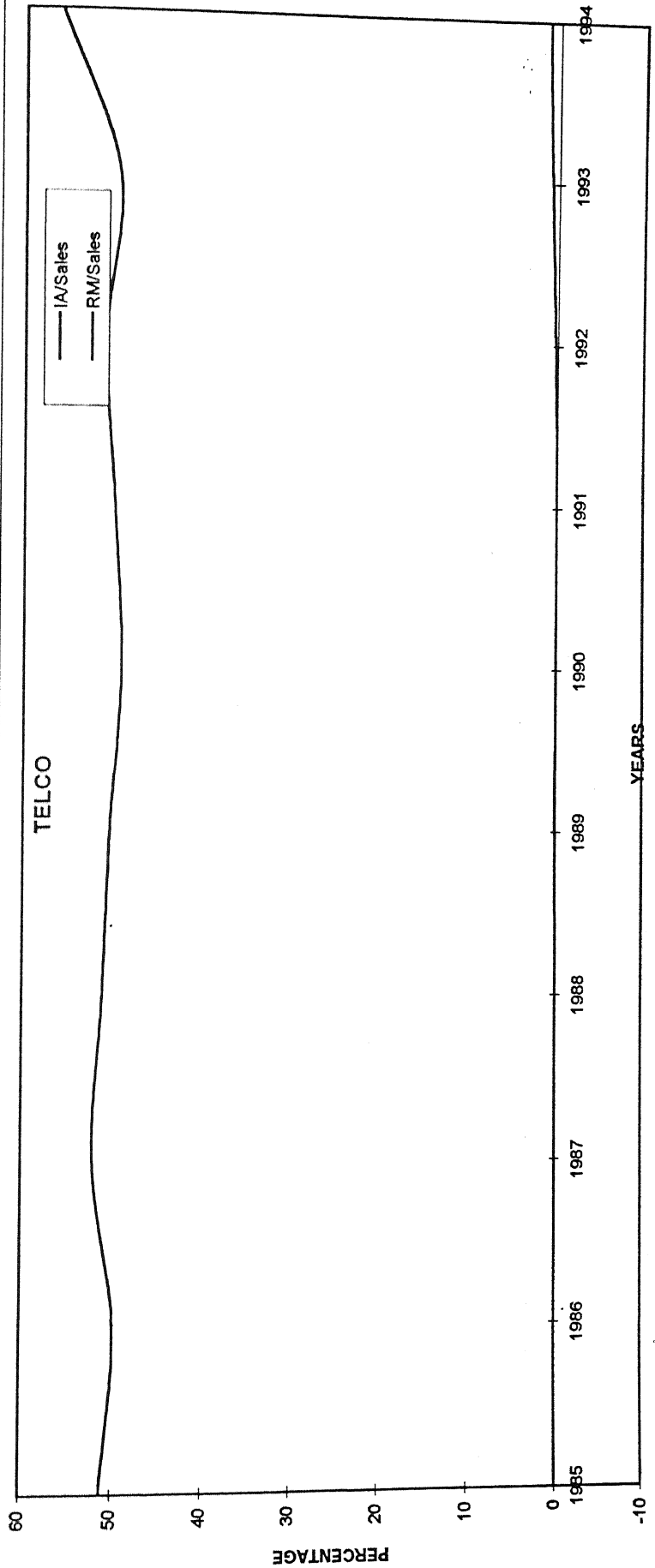
Years	Mfg eqpt	Sales	Mfg Eqpt /Yr
1985	4029200	9140400	
1986	4499900	10080000	470700
1987	5141700	11820000	641800
1988	5647500	13868500	505800
1989	6353100	16545900	705600
1990	7056300	19216000	703200
1991	7704700	25347300	648400
1992	9094100	30846900	1389400
1993	10515400	30250800	1421300
1994	12908800	37041000	2393400



Years	ROI %	NP/TA
1985	13.76	3
1986	12.79	3
1987	9.41	0
1988	14.82	2
1989	17.38	6
1990	18.13	7
1991	20.98	8
1992	14.99	5
1993	11.13	1
1994	13.84	3

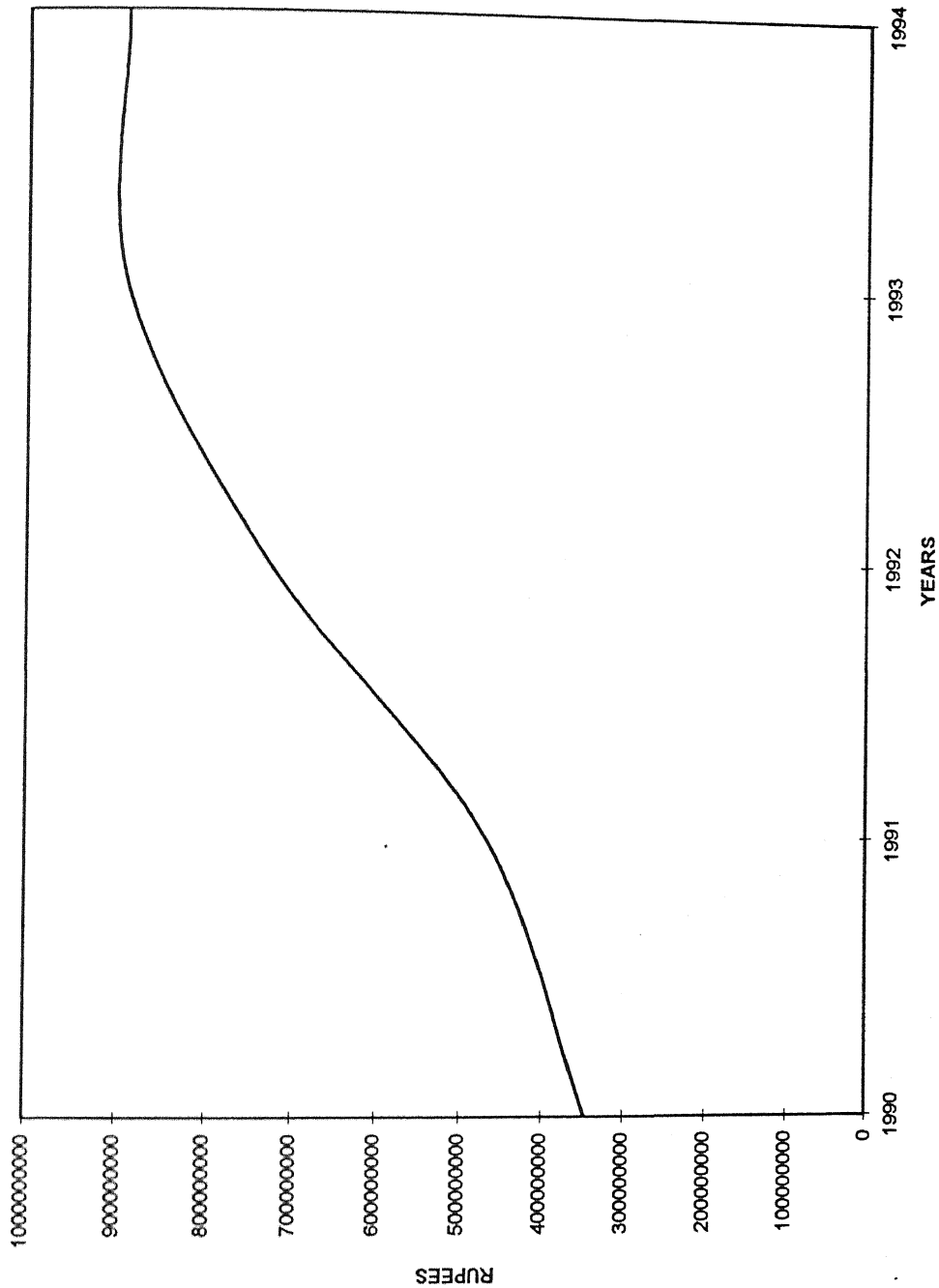


Years	Sales	Int Assets	Raw Mtrls	IA/Sales	RM/Sales
1985	9140400	0	4681500	0	51.21767
1986	10080000	0	5021000	0	49.81151
1987	11820000	0	6179700	0	52.28173
1988	13868500	2400	7109600	0.017305	51.26438
1989	16545900	20300	8368900	0.122689	50.5799
1990	19216000	16100	9495800	0.083784	49.41611
1991	25347300	11900	12747000	0.046948	50.28938
1992	30846900	97100	15828400	0.31478	51.31277
1993	30250800	251200	15086400	0.830391	49.87108
1994	37041000	452000	20841100	1.220269	56.26495



Years	Advt-Mktg
1985	
1986	
1987	
1988	
1989	
1990	3.46E+08
1991	4.69E+08
1992	7.28E+08
1993	8.9E+08
1994	8.91E+08

TELCO



COMPANY NAME: TELCO

PRODUCT : LCV/MCV

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	Sales up by 20% on an average	
2.	MARKETING EXPENDITURE (% of Sales)	0.25 to 1.7 %	
3.	COST OF RAW MATERIALS (% of Sales)	49 to 56 %	
4.	MARKET SHARES	53.8%	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0 to 1.22%	
6.	COMPETITORS	1.Bajaj Tempo (22%) 2.Swaraj Mazda (5.5%) 3.DCM Daewoo (4.9%) 4.Ashok Leyland	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	Average 33%	
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	Average 44%	
9.	ROI PERFORMANCE	10 to 20 %; nearer to 20%	
10.	NET PROFIT/TOTAL ASSETS	similar good performance	
11.	CAPACITY UTILIZATION	Licensed Installed Actual	N A

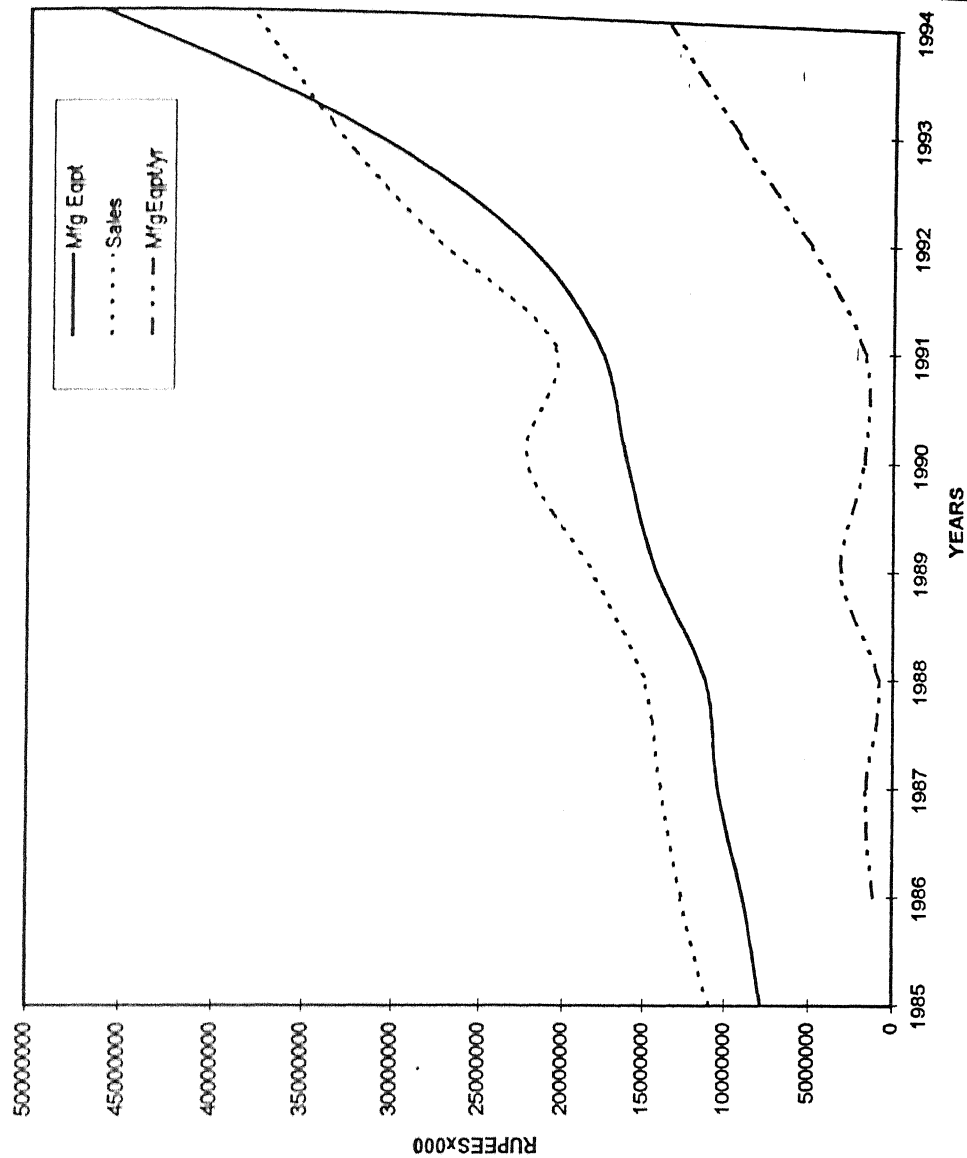
JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Competition is substantial.
2. Environment is nearer to stable.
3. Manufacturing strategy was bold initially then became incremental; bold later for three years.

Verifies Proposition No: 1 and 3.

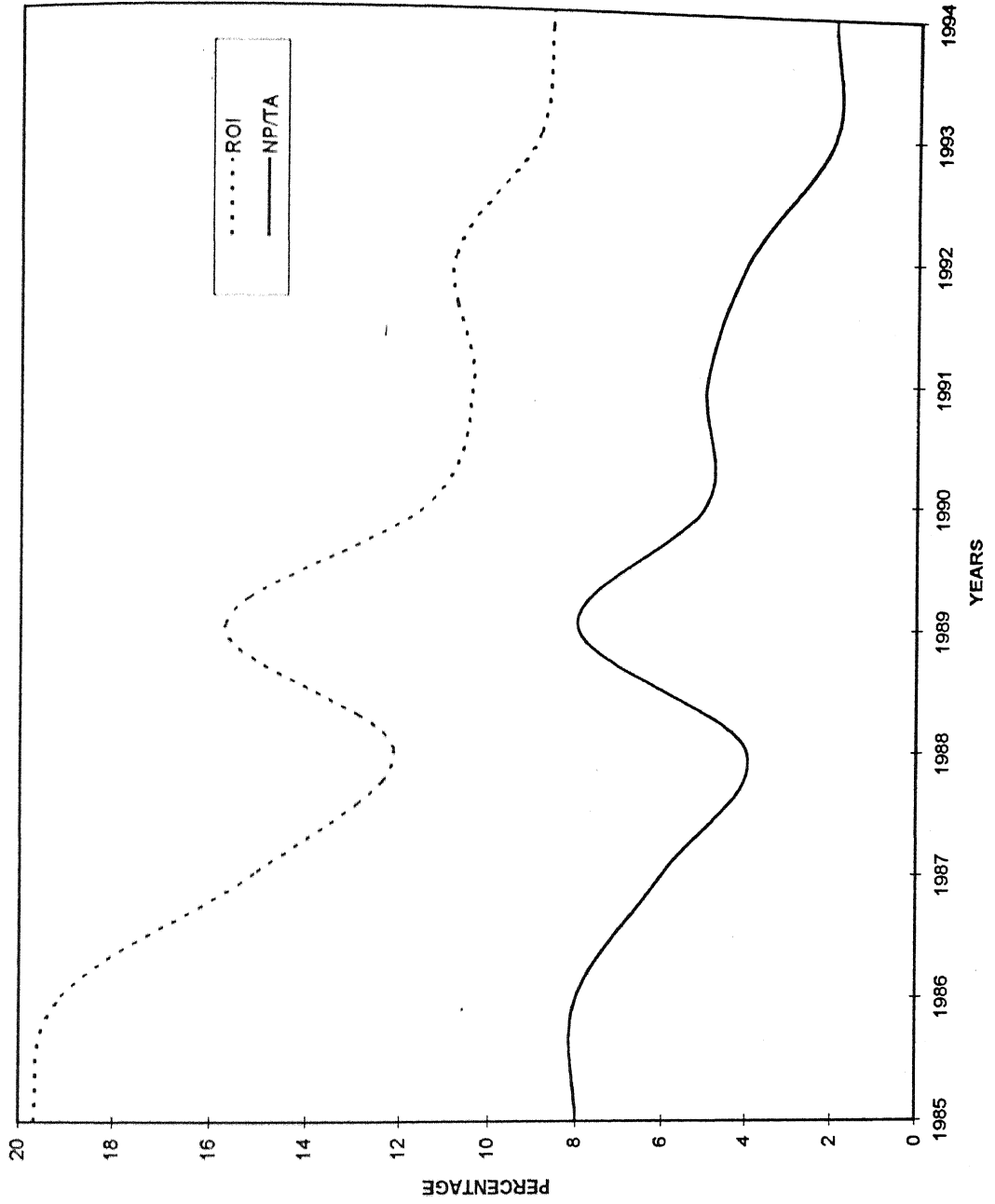
Years	Mfg Eqpt	Sales	MfgEqpt/yr
1985	7827900	10912100	
1986	8963800	12633100	1135900
1987	10519400	13928200	1555600
1988	11318700	15014500	799300
1989	14432400	18377700	3113700
1990	16214800	22296100	1782400
1991	17915100	20595700	1700300
1992	22940100	27873200	5025000
1993	32385200	33521500	9445100
1994	46066800	37909700	13681600

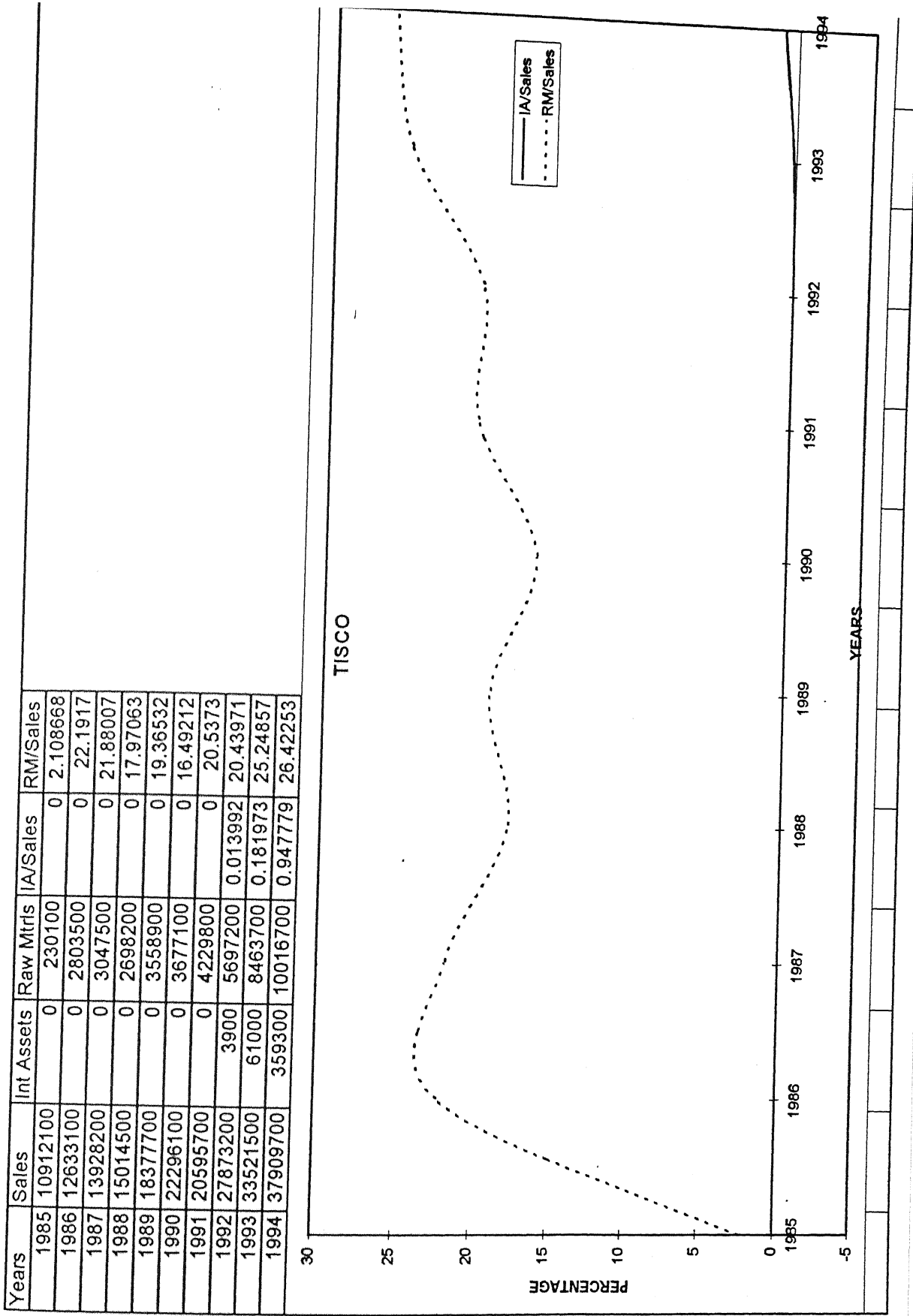
TISCO



Appendix "V2"

Years	ROI	NP/TA
1985	19.66	8
1986	19.11	8
1987	15.06	6
1988	12.12	4
1989	15.7	8
1990	11.33	5
1991	10.39	5
1992	10.81	4
1993	8.9	2
1994	8.6	2





COMPANY NAME: TISCO

PRODUCT : STEEL

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	16;71;8;22;21;35;20;13%	Moderately growing
2.	MARKETING EXPENDITURE (% of Sales)	8 to 9% annually	Substantial
3.	COST OF RAW MATERIALS (% of Sales)	Average 20%	
4.	MARKET SHARES	17%	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0 to 1%	
6.	COMPETITORS	1.SAIL (44.5%) 2.Mukund (2.4%) 3.R I N (9.5%)	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	90%	Stable at 70% for 6 years
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	48 to 75 %	
9.	ROI PERFORMANCE	Comes down from 20 to 10%	
10.	NET PROFIT/TOTAL ASSETS	Comes down from 8 to 3%	
11.	CAPACITY UTILIZATION	Licensed 21 Lacs T Actual 21 Lacs T	

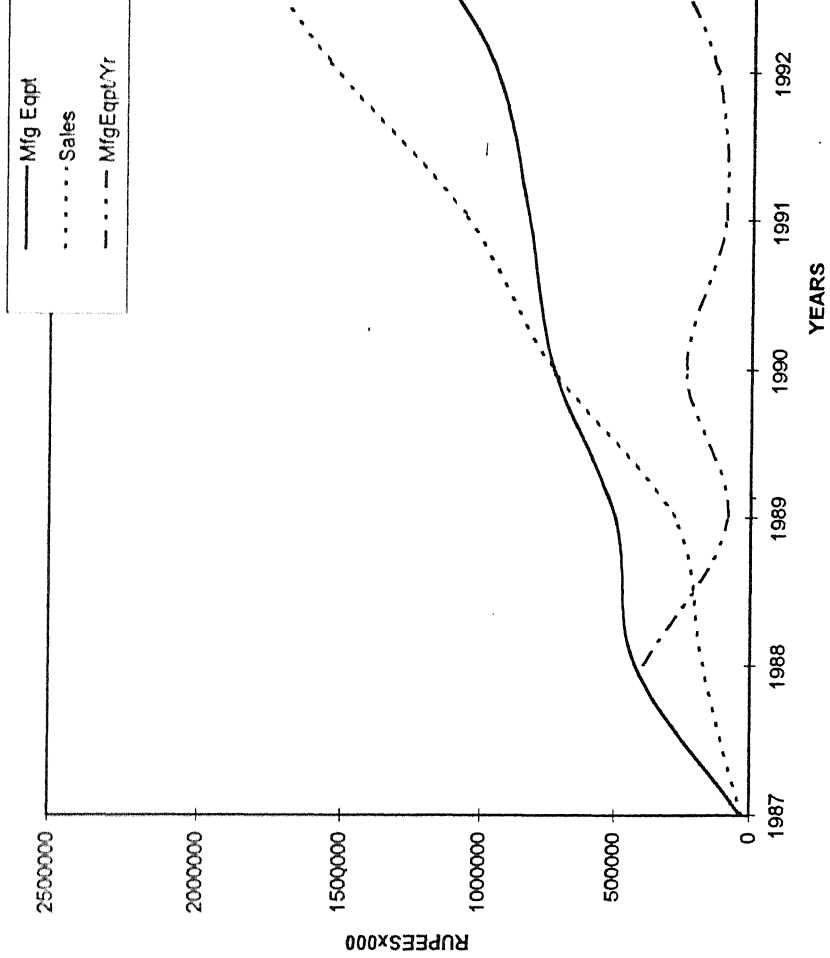
JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Environment is turbulent .
2. Manufacturing strategy followed is bold approaches.From '91 it goes up dramatically.

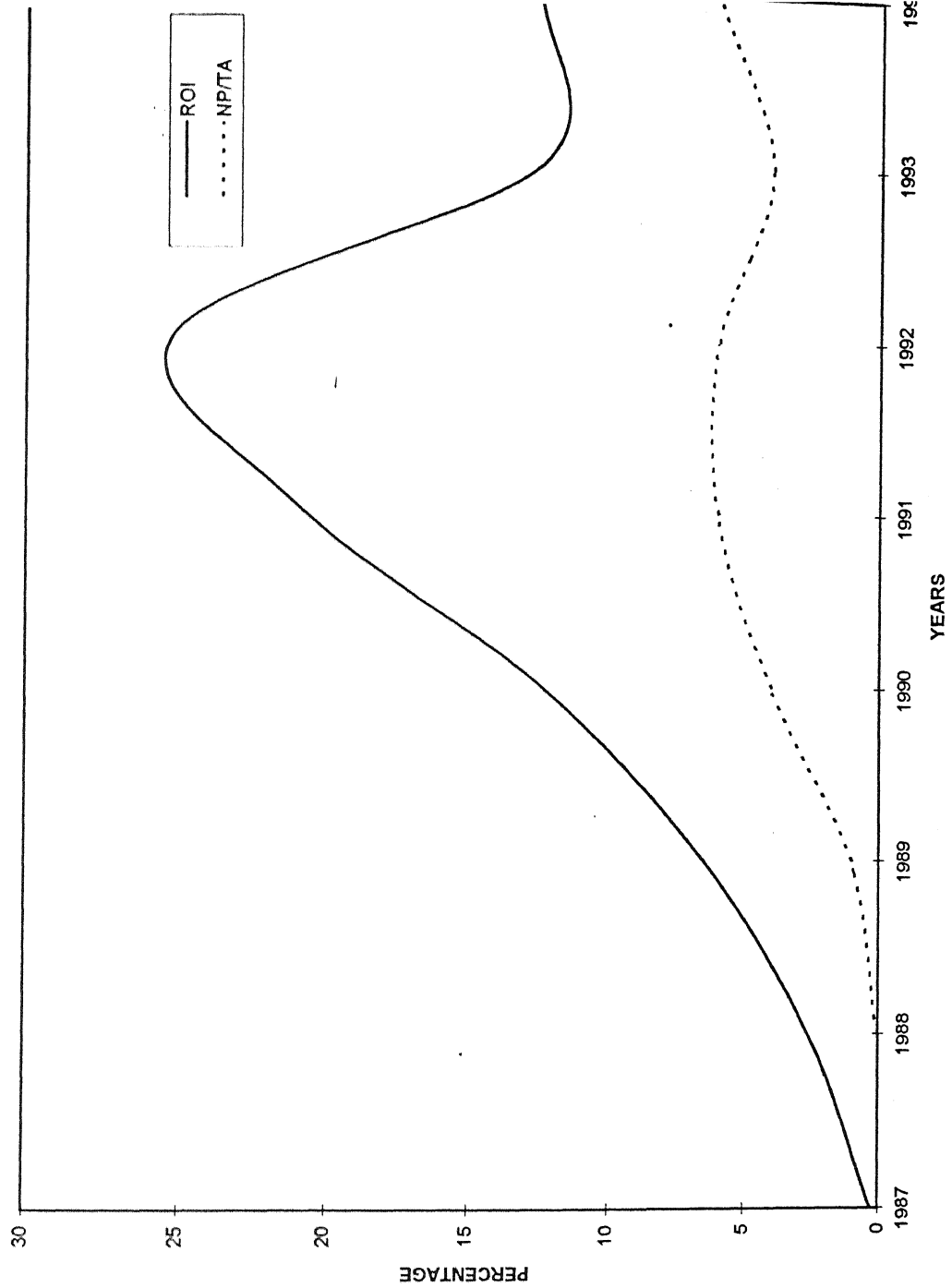
Verifies Proposition No:5

Years	Mfg Eqpt	Sales	MfgEqpt/Yr
1987	27323	24310	
1988	422602	167962	395279
1989	502405	275894	79803
1990	739921	740556	237516
1991	835779	1062604	95858
1992	963550	1550095	127771
1993	1271382	1912145	307832
1994	1360477	2262269	89095

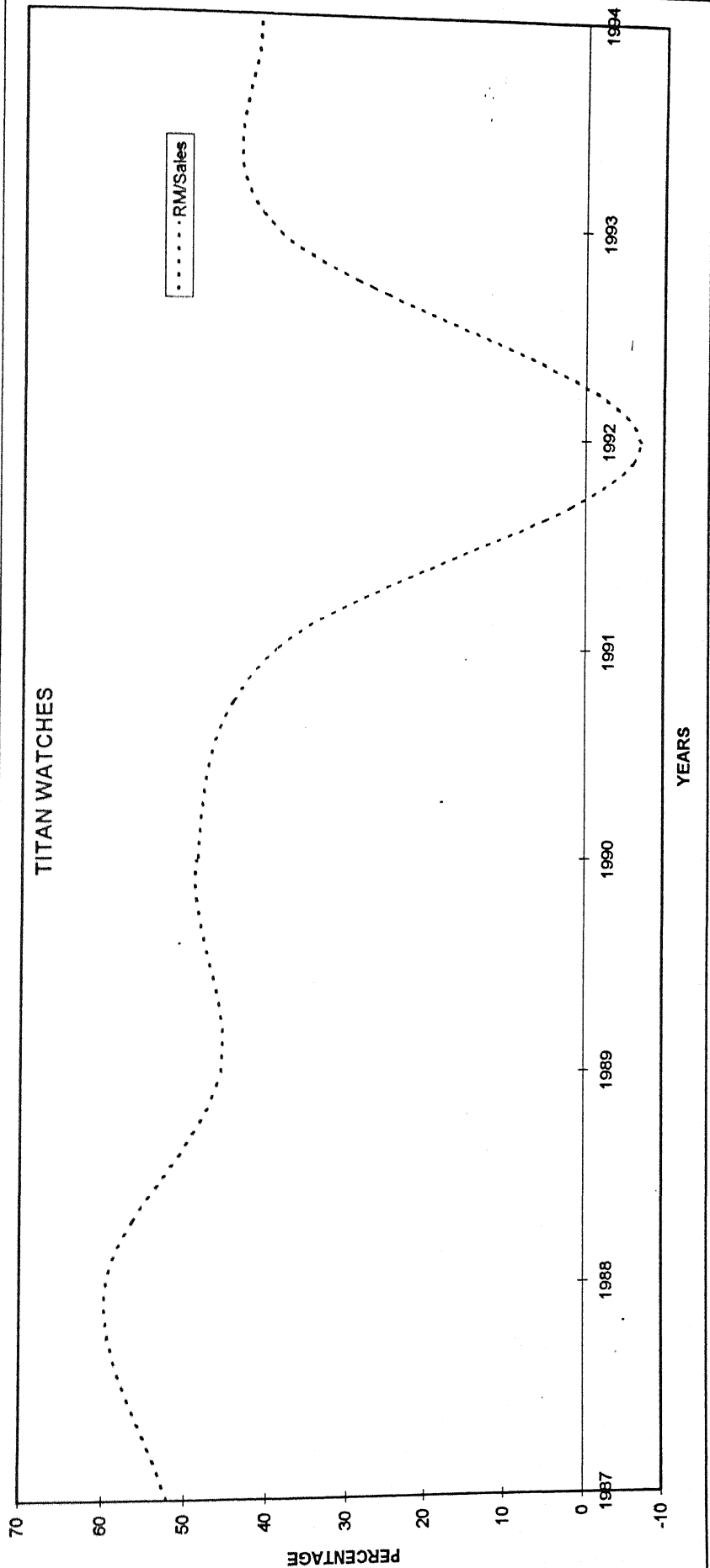
TITAN WATCHES

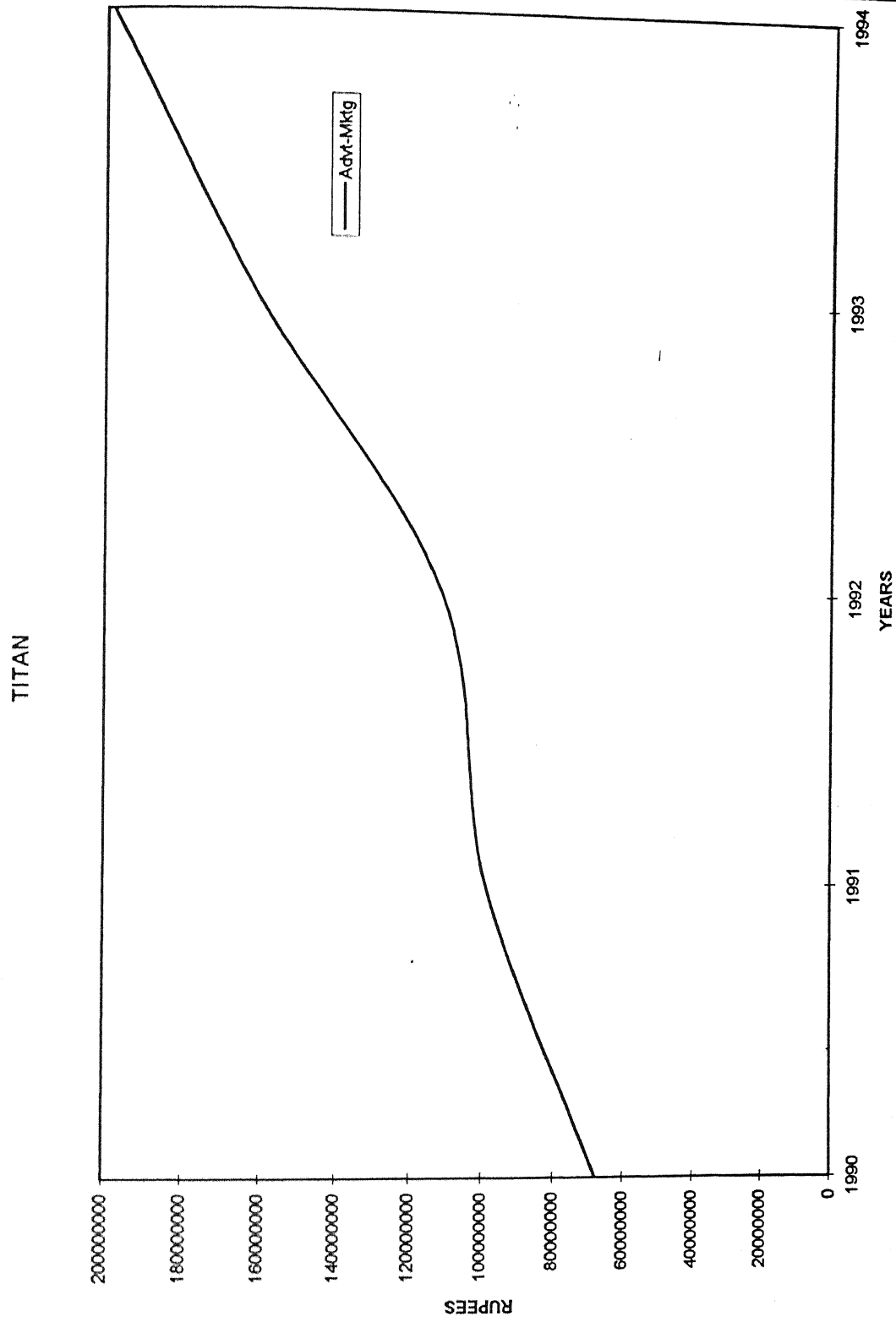


Years	ROI	NP/TA
1987	0.28	
1988	2.62	0
1989	6.53	1
1990	12.49	4
1991	20.97	6
1992	25.18	6
1993	12.51	4
1994	12.6	6



Years	Sales	Int Assets	Raw Mtrls	IA?Sales	RM/Sales
1987	24310	0	12636	0	51.97861
1988	167962	0	99995	0	59.5343
1989	275894	0	126552	0	45.86979
1990	740556	0	362001	0	48.88233
1991	1062604	0	418169	0	39.35323
1992	1550095	0	-110064	0	-7.10047
1993	1912145	0	767032	0	40.11369
1994	2262269	0	943432	0	41.70291



[illegible]

COMPANY NAME: TITAN

PRODUCT : QUARTZ WATCHES

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	fluctuating	
2.	MARKETING EXPENDITURE (% of Sales)	8 to 9%	Highest
3.	COST OF RAW MATERIALS (% of Sales)	40 to 50 %	
4.	MARKET SHARES	41 %	Market leaders
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0%	
6.	COMPETITORS	1.HMT (18.6%) 2.Timex (7.6%)	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	112;250;182;100% fluctuating	Very High
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	50 to 60%	
9.	ROI PERFORMANCE	Zooming to 25%	
10.	NET PROFIT/TOTAL ASSETS	Zooming to 5%	
11.	CAPACITY UTILIZATION	Licensed NA Installed 35 lacs Actual 29 lacs	

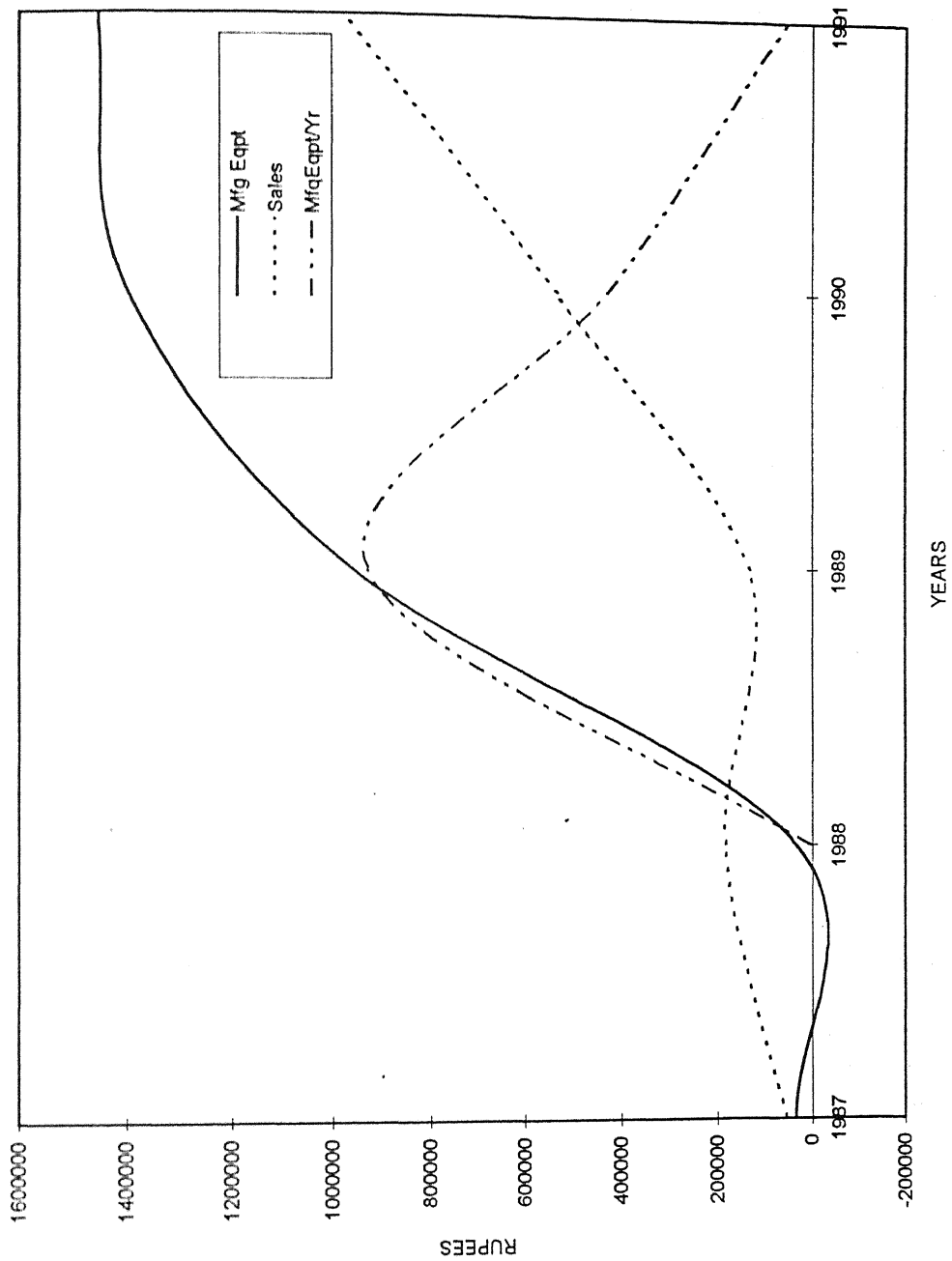
JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Competition is moderate.
2. Environment is stable and comfortable.
3. Manufacturing strategy followed is bold approaches; firm doing well; also high marketing expenditure.

Verifies Proposition No:3

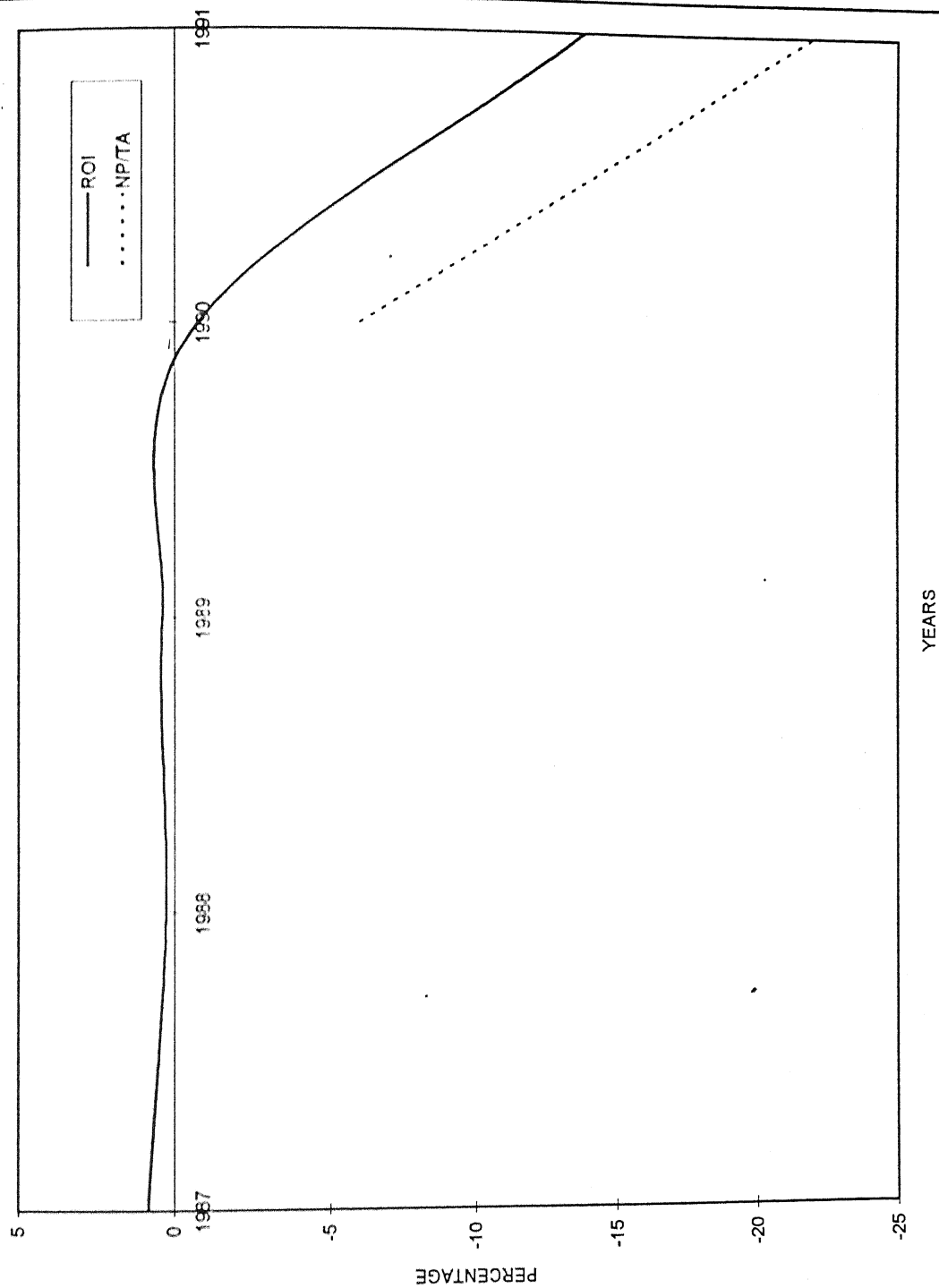
Years	Mfg Eqpt	Sales	MfgEqpt/Yr
1987	34587	55083	
1988	34587	181920	0
1989	965051	130294	930464
1990	1398904	536534	433853
1991	1452105	976871	53201

UPTRON COLOR PICTURE TUBES



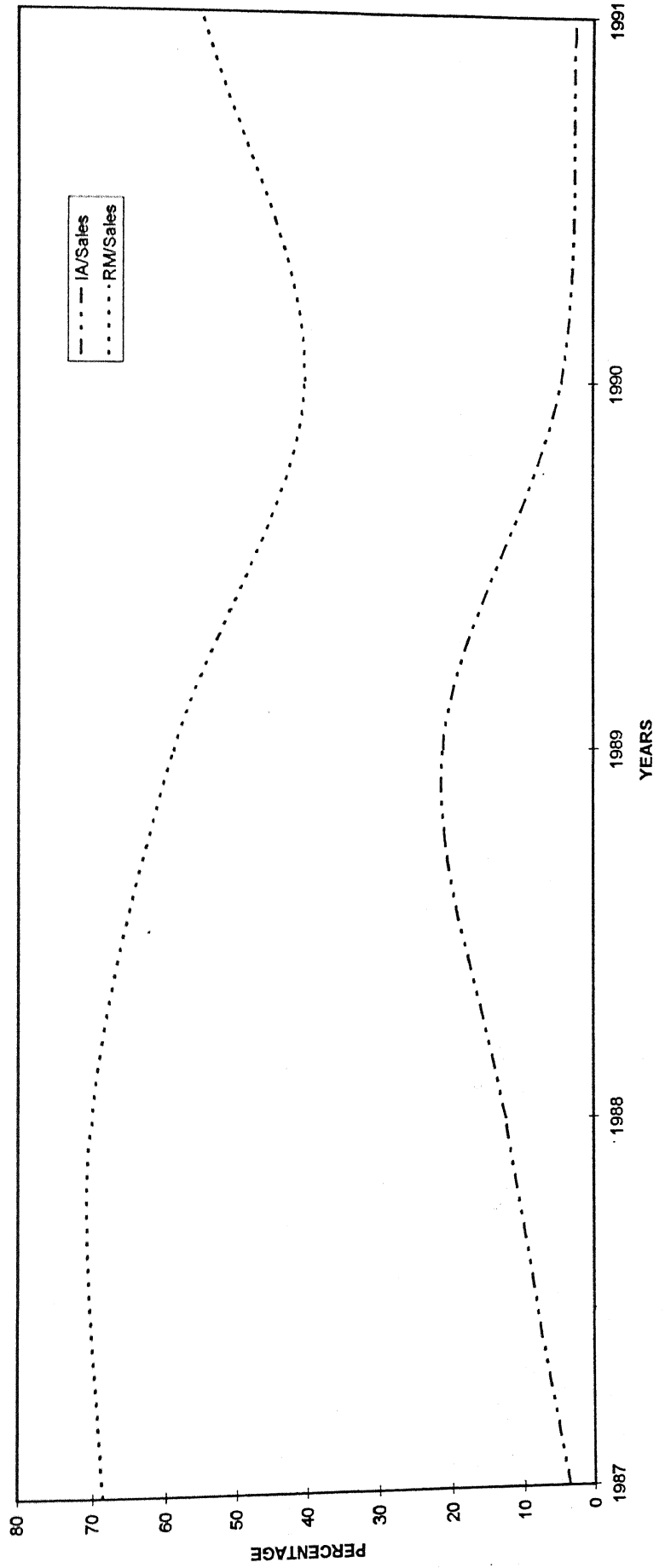
Appendix "X2"

Years	ROI	NP/TA
1987	0.82	
1988	0.27	
1989	0.4	
1990	-0.72	-6
1991	-13.81	-22



Years	Sales	Int Assets	Raw Mtrls	IA/Sales	RM/Sales				
1987	55083	1929	37820	3.501988	68.66002				
1988	181920	22660	127848	12.45602	70.27704				
1989	130294	27728	77155	21.2811	59.21608				
1990	536534	24112	217557	4.49403	40.5486				
1991	976871	21834	538366	2.235096	55.11127				

UPTRON TV



COMPANY NAME: UPTRON

PRODUCT : COLOR PICTURE TUBES & TV

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	230; 311; 87%	Very high
2.	MARKETING EXPENDITURE (% of Sales)	NA	
3.	COST OF RAW MATERIALS (% of Sales)	40 to 70 %	
4.	MARKET SHARES	5%	
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	3.5 to 21%	may include advertising expenditure
6.	COMPETITORS	1.SONY 2.Onida 3.Videocon 4.BPL	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	Very High	
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	60 to 80 %	
9.	ROI PERFORMANCE	Very low	
10.	NET PROFIT/TOTAL ASSETS	Very low	
11.	CAPACITY UTILIZATION	Licensed NA Installed 7.5 lacs Actual 2.28 lacs	

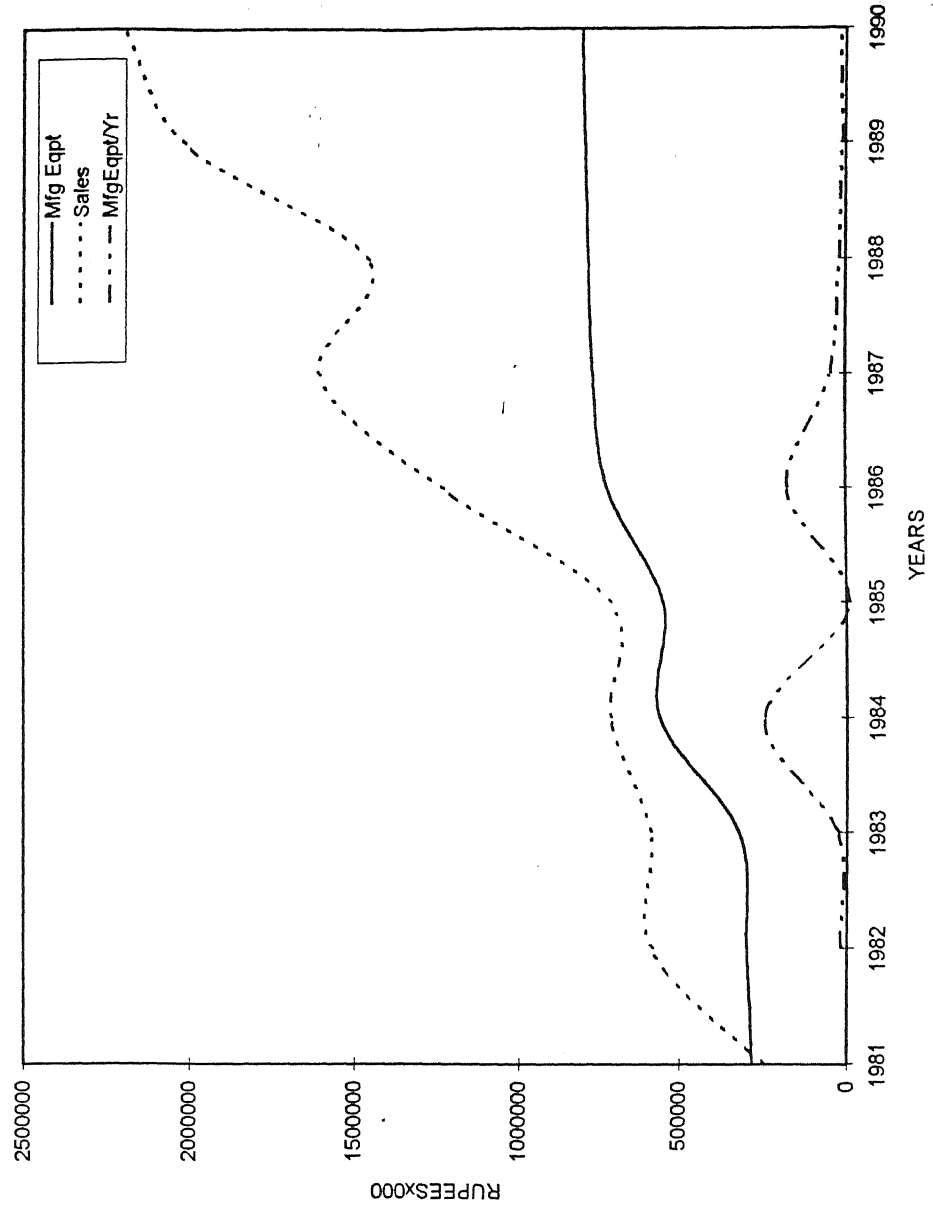
JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Competition is severe.

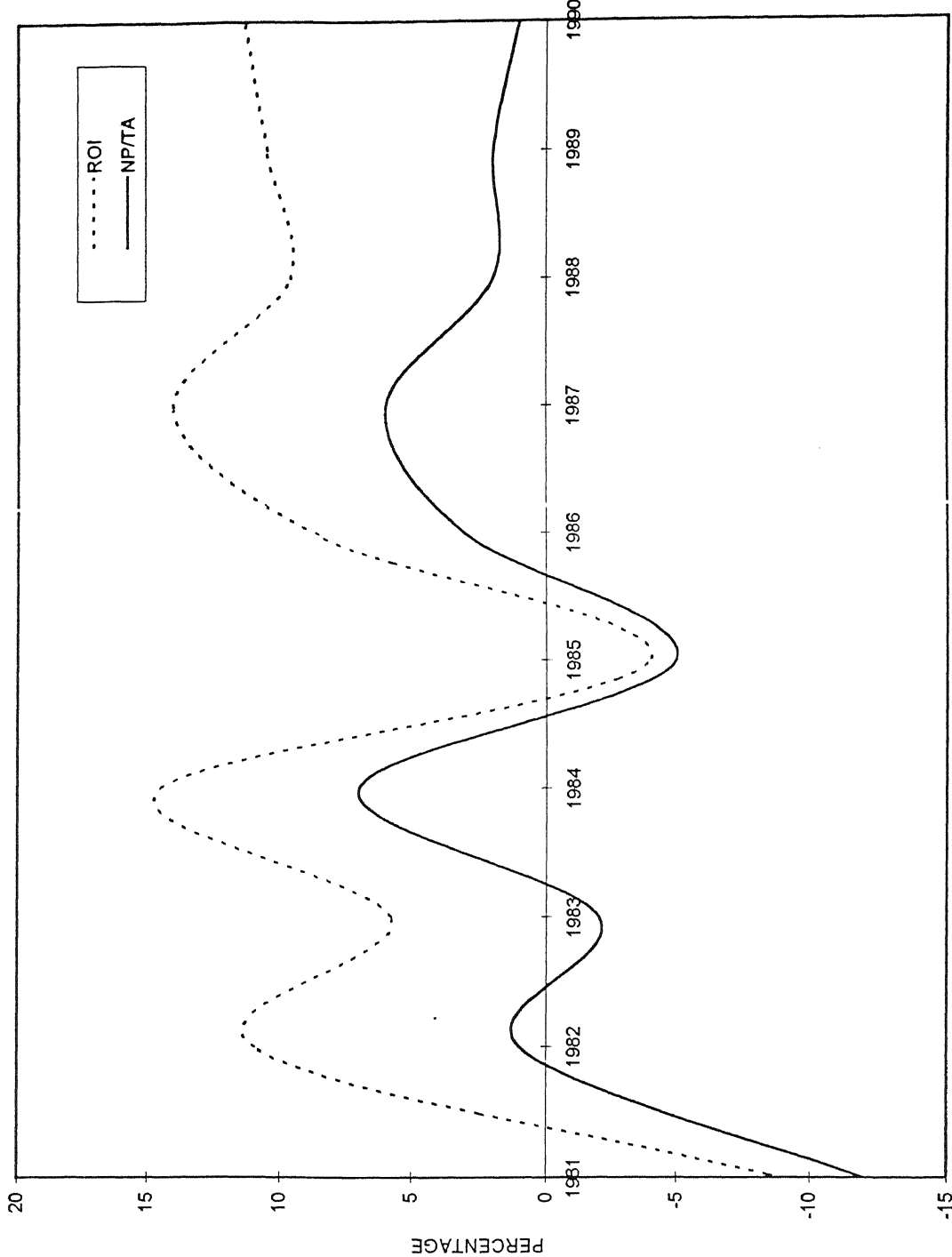
2. Environment is heavily turbulent .They took a bold approach to manufacturing strategy .

Years	Mfg Eqpt	Sales	MfgEqpt/Yr
1981	279244	240429	
1982	296260	580738	17016
1983	319197	584403	22937
1984	560421	710200	241224
1985	549290	706105	-11131
1986	720638	1220373	171348
1987	764800	1596617	44162
1988	781896	1445587	17096
1989	791686	2007019	9790
1990	803786	2188414	12100

VIKRANT

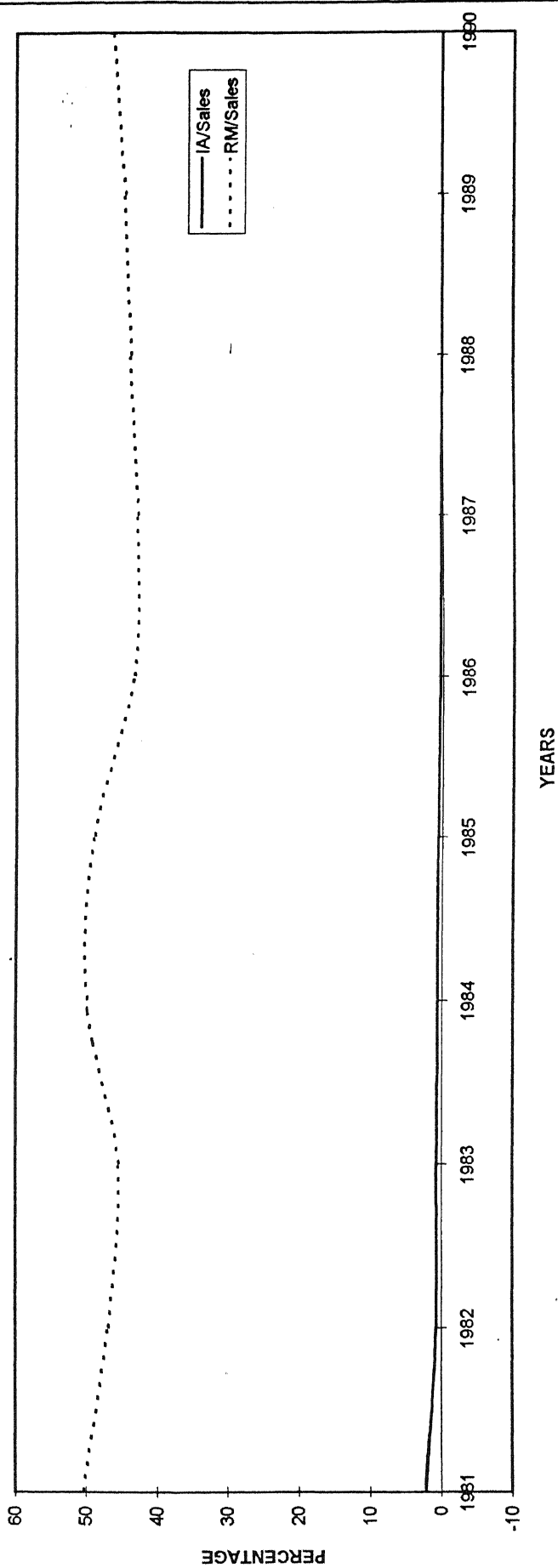


Years	ROI	NP/TA
1981	-9.21	-12
1982	10.9	1
1983	5.74	-2
1984	14.51	7
1985	-4.02	-5
1986	8.52	3
1987	14	6
1988	9.62	2
1989	10.48	2
1990	11.27	1



Years	Sales	Int Assets	Raw Mtrls	IA/Sales	RM/Sales
1981	240429	5281	121231	2.19649	50.42279
1982	580738	4300	272359	0.740437	46.89877
1983	584403	4300	265066	0.735794	45.35671
1984	710200	4300	354800	0.605463	49.95776
1985	706105	4300	345745	0.608975	48.9651
1986	1220373	4300	530377	0.352351	43.46024
1987	1596617	3822	684529	0.239381	42.87371
1988	1445587	0	633540	0	43.8258
1989	2007019	157	896042	0.007823	44.64542
1990	2188414	170	1011898	0.007768	46.23887

VIKrant TYRES



COMPANY NAME: VIKRANT TYRES

PRODUCT : TYRES

S.No	FACTORS	OBSERVATIONS	CONCLUSIONS
1.	SALES VARIABILITY	Fluctuates heavily	High-- 142;71%; Low-- 9; 21;38; 30 ; Very low--0.6%
2.	MARKETING EXPENDITURE (% of Sales)	0.03%	Very low
3.	COST OF RAW MATERIALS (% of Sales)	42 to 50 %	
4.	MARKET SHARES	6.3%	On par with Dunlop
5.	R & D EXPENDITURE (Intangible Assets) (% of Sales)	0 to 0.6%	
6.	COMPETITORS	1.MRF(17.5%) 2.CEAT(13.2%) 3.APPOLO(13%) 4.MODI(11.5%) 5.JK TYRES(12%)	
7.	INVESTMENT IN PLANT & MACHINERY (% of Sales)	40 to 50%	
8.	INVESTMENT IN PLANT & MACHINERY (% of Total Assets)	65% average	
9.	ROI PERFORMANCE	Highly fluctuating	
10.	NET PROFIT/TOTAL ASSETS	Highly fluctuating	
11.	CAPACITY UTILIZATION	Licensed 18 lacs Installed 9.64 lacs Actual 1.82 to 5.6 lacs	

JUDGEMENT ABOUT ITS ENVIRONMENT:

1. Competition is severe.
2. Environment is turbulent
3. Manufacturing investment was bold approach. Not emphasised on marketing function,hence poor performance.